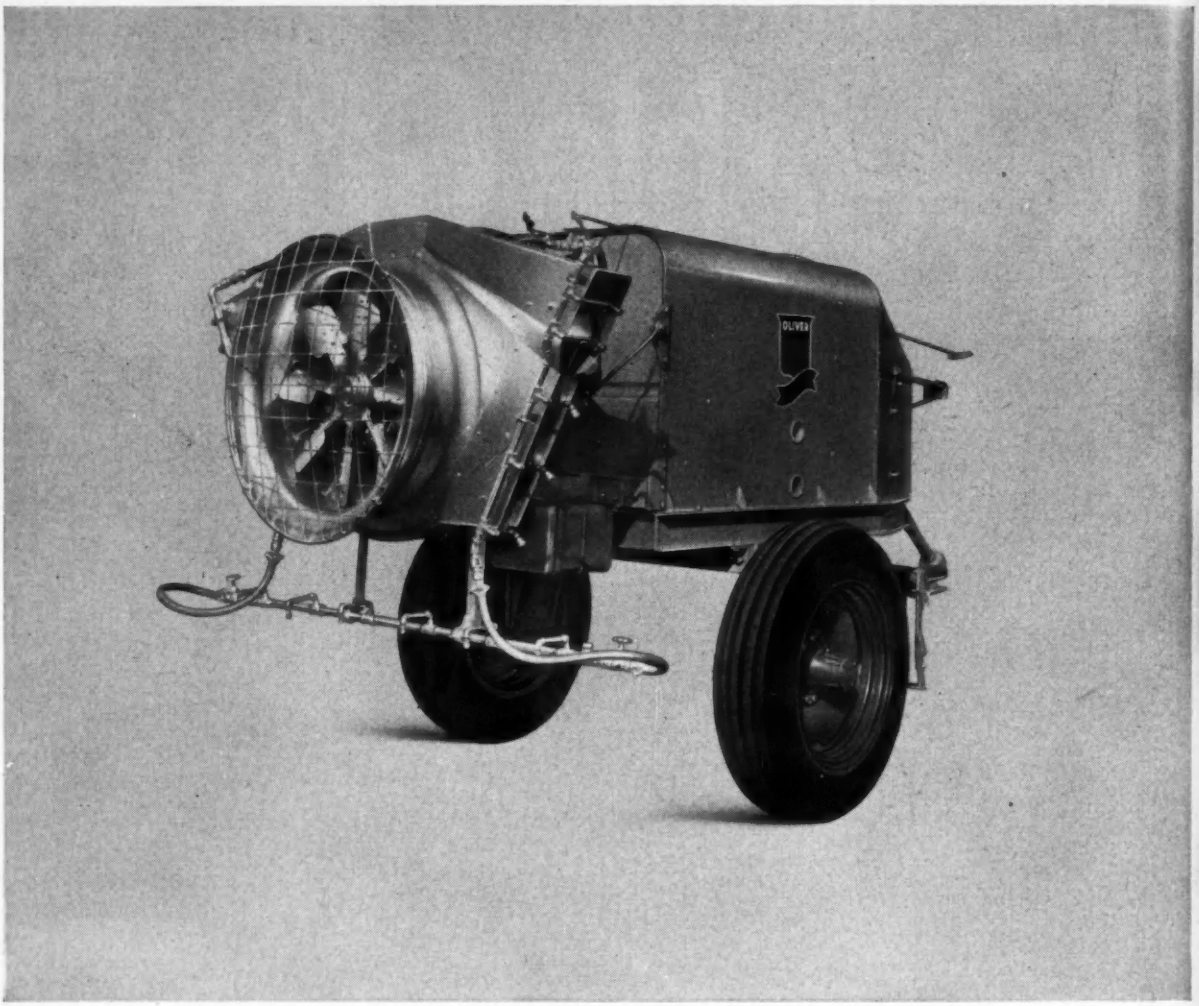
American

Vegetable Grower

JUNE • 1955

THE NEW SCIENCE OF IRRIGATION

Asgrow



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You can have SPRA-BLAST in your choice of ways...either as an attachment for your present row crop sprayer or as a complete sprayer. Either way you get traditional Iron Age quality features that mean extra vegetables and profits.

If you're interested in quality vegetables and pest control at lower costs, see this new OLIVER IRON AGE SPRA-BLAST before you buy.

The OLIVER Corporation
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OLIVER **OLIVER**

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See your OLIVER DEALER for Quality

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4. Malathion can be used together with most other spray materials.
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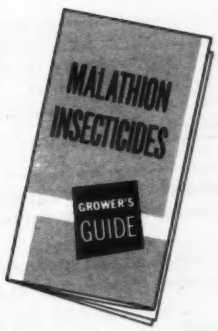
Malathion insecticides are available from well-known manufacturers, under their own trade names, in wettable powder, emulsifiable liquid and dust forms.



AMERICAN Cyanamid COMPANY

AGRICULTURAL CHEMICALS DIVISION

30 Rockefeller Plaza, New York 20, N. Y.

DEVELOPERS AND PRODUCERS OF MALATHION AND PARATHION TECHNICAL

THIS IS WHAT A

Durand Hydrocooler

can mean to vegetable growers in

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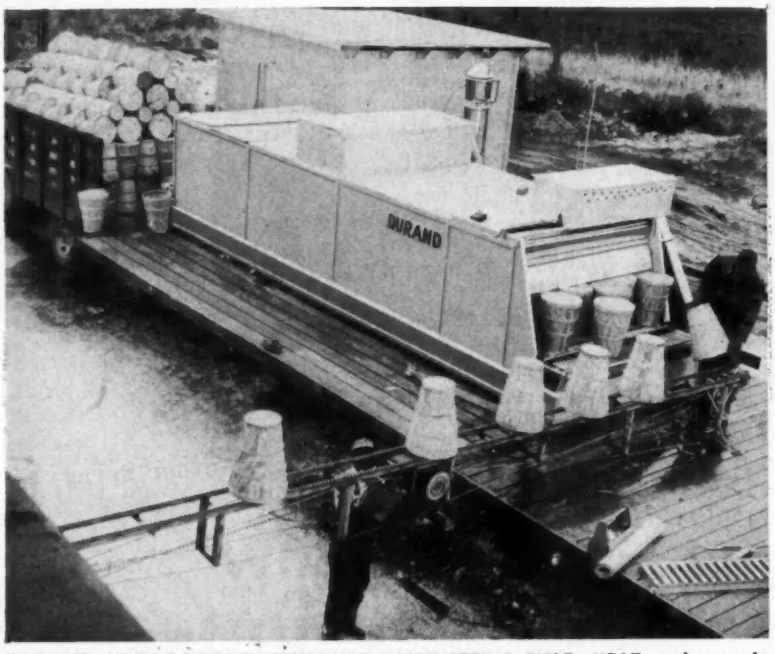
Secy., Crystal Valley
Vegetable Growers
Cooperative
Britt, Iowa

"We have found buyers ready to pay higher prices and anxious to get our sweet corn since installing a Durand Hydrocooler. It means our vegetables are reaching the market always in top condition. It is one of the best investments we ever made."



DURAND HYDROCOOLER REMOVES DESTRUCTIVE FIELD HEAT and retards bacteria that causes decay of produce in transit. With a Durand Hydrocooler — less labor is required for icing. Only one place to ice, easy one-man job; less initial investment, cools with less ice, takes less than half the amount of water required by other machines, no delay waiting for water to cool at start.

PARTIAL SPECIFICATIONS	MODEL		
Also 3 larger models not listed	A	1	2
Bu. per hr., 15 min. cooling	100	212	312
½ Bu. per hr., 15 min. cooling	155	326	480
Cooling time (minutes)	8-25	8-25	8-25

CLIP & MAIL TODAY

DURAND MANUFACTURING CO., Woodbury, Georgia
Please send me information on a Durand Hydrocooler for the following crops:

_____, _____, _____

My total annual shipments are_____(Bu.), (Boxes), (Hampers), (Lbs.)
Also send information on Equipment for_____Grading,_____Packing,
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American
VEGETABLE GROWER

REG. U. S. PAT. OFF.
(Commercial Vegetable Grower)
Vol. 3 June 1955 No. 6

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E. K. GOULD, Managing Editor
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GEORGE M. ROSS, Art Director
J. D. AUHL, Production Manager
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AGRI-STREP,* the new, high potency, bacterial blight control spray, contains streptomycin. Extensive field tests have proved streptomycin to be the most potent, most stable, and most effective antibiotic for controlling certain bacterial plant diseases. That's why more than a dozen state experiment stations in all major producing areas are recommending its use this year.

In many tests, orchards sprayed with AGRI-STREP needed less than one blight cut for any two to three trees, while unsprayed trees required ten or more cuts a tree.

This is *big* money-making news for orchardists who grow apples, pears, or walnuts. For *now* you can boost market quality and prevent yield losses from fire blight in apples and pears—and blight in walnuts—by putting AGRI-STREP in your orchard blight control program.

Try AGRI-STREP for excellent control of these other plant diseases:

- **TOMATOES**—Bacterial Spot
- **PEPPERS**—Bacterial Spot
- **POTATOES**—Soft Rot and Black Leg
- **TOBACCO**—Wild Fire and Blue Mold

For details, consult your county extension agent or state experiment station.

Merck agricultural streptomycin is easy to use and readily available. It is sold as ORTHO STREPTOMYCIN by California Spray-Chemical Corp., Richmond, Calif., or Washington, D. C.; and as AGRI-STREP by Niagara Chemical Division, Food Machinery and Chemical Corp., Middleport, N.Y. Contact their local representative or dealer.

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METHOXYCHLOR INSECTICIDE

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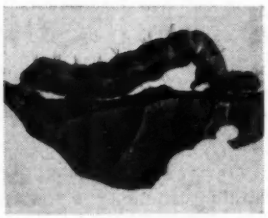
ON CUCURBITS—"Marlate" stops striped and spotted cucumber beetles *without* injuring these sensitive plants . . . even in seedling stages. It's tops for squash vine borer and pickleworm, too.

CUCUMBER BEETLE

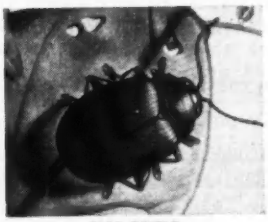
MEXICAN BEAN BEETLE

ON BEANS—"Marlate" gives outstanding residual control of Mexican bean beetle, leafhopper and bean leaf beetle. "Marlate" can be used up to a week before harvest without hazard to pickers or consumers.

ON COLE CROPS—"Marlate" gives excellent control of flea beetles, worms and loopers. It is ideal for post-heading sprays because it can be used late in the season without presenting residue hazards.



CABBAGE LOOPER



FLEA BEETLE

ON ASPARAGUS, TOMATOES, POTATOES—"Marlate" stops flea beetle on tender tomato transplants without injury; controls damaging asparagus beetle; has given almost 100% control of DDT-resistant Colorado potato beetle and other potato insects.

For low-cost weed control in asparagus—Du Pont Karmex® W Herbicide

1 to 4 lbs. per acre of Karmex stops annual weeds and grasses for 6 weeks or more. It's an easy-to-use wettable powder, ready to mix with water. Spray before emergence and after harvest. Won't harm equipment. Consult local authority on dosages, timing.

Killing efficiency, residual control and safety to plants and operator make Du Pont "Marlate" your best insecticide buy for these and other vegetable crops . . . see your dealer for "Marlate" today!

Marlate® 50

Methoxychlor Insecticide

DU PONT

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Better Things for Better Living . . . through Chemistry

LETTERS TO THE EDITOR

Junior Vegetable Growers

Dear Editor:

I read with interest your article, "Junior Growers Complete Active Year," in the February, 1955, issue. It is certainly a pleasure to see these fine young Americans doing such a good job in the farm industry. They deserve a hand!

Hillsdale, N.J. E. M. Smith

Dear Editor:

I would like to express appreciation on behalf of our organization for the opportunity of publishing news of National Junior Vegetable Growers Association in your magazine. I have taken AMERICAN VEGETABLE GROWER previous to this year and feel that it is a very valuable and worthwhile publication. I know, too, that junior vegetable growers will receive a great deal of additional help and information by reading the interesting articles which are to be found in AMERICAN VEGETABLE GROWER.

May I also include my personal "thanks" for the very nice article you wrote in the February issue concerning the recent award I received from the NJVGA.

Liberty, Mo. Jack Armstrong
Vice-Pres., NJVGA

Snowflake Potato

Dear Editor:

I would like to know of anyone who has seed either of the old-fashioned Snowflake potato or the Long Island Beauty muskmelon. I lost my seed in a fire last spring.

Jerome, Mich. Henry J. Lathers

Arthur J. Pratt of Cornell University reports the following: "The Snowflake is a cross between Early Rose and White Peachblow that was made in 1869. It is no longer available commercially." The best we can suggest is that one of our readers may know of a seed source and will write Mr. Lathers.

The Long Island Beauty muskmelon is also not listed by seed companies. It was a selection of Hackensack which is now available from the Corneli Seed Company, St. Louis, Mo. Corneli has two strains of Hackensack, one of which might be close to the Long Island Beauty.—Ed.

Renewing Plastic Greenhouse

Dear Editor:

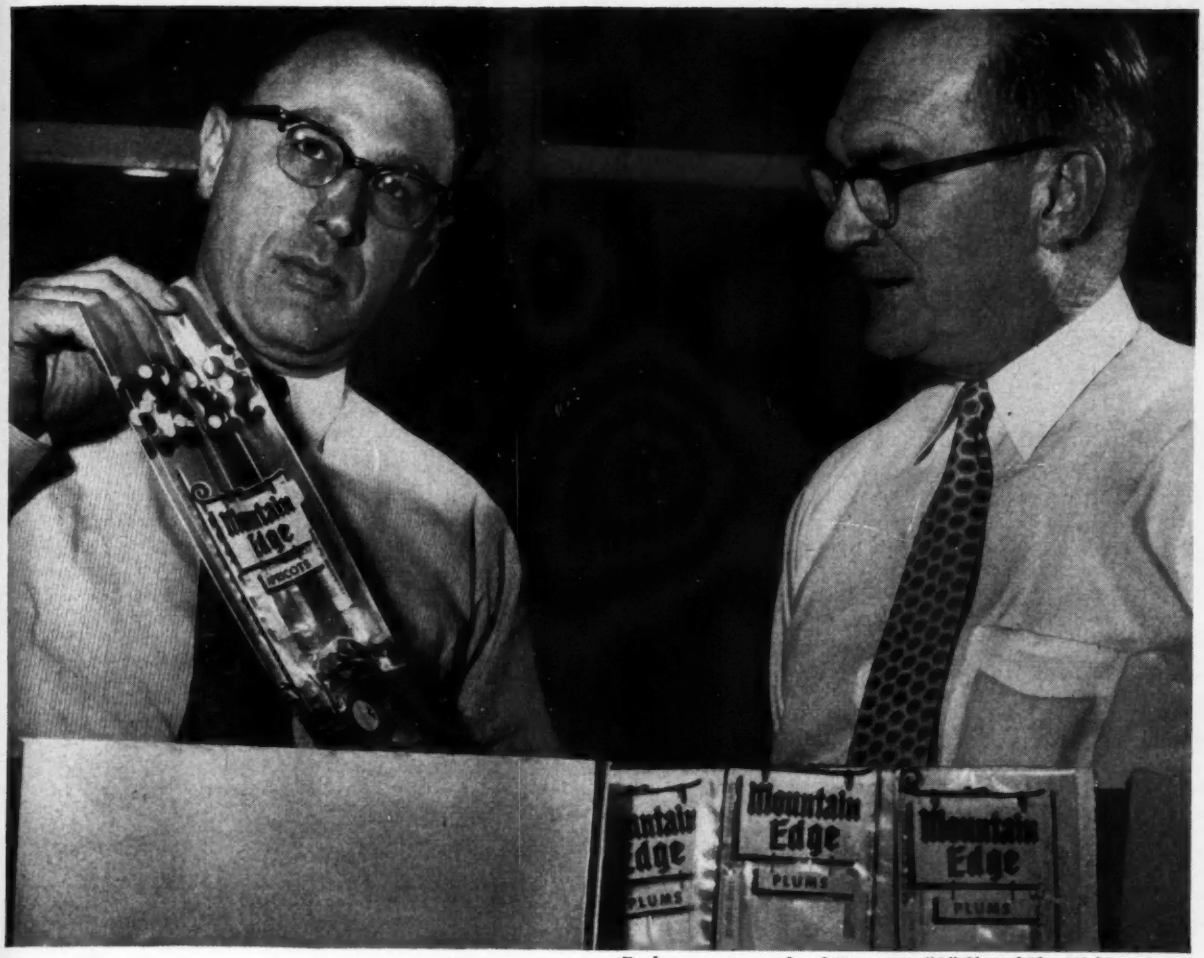
I note that the March "Letters to the Editor" column contained an inquiry from a Wisconsinite who wanted to know what effect high winds and snow loads would have on the plastic greenhouse. I have a different problem. I would like to know what effect, if any, the intense Florida sun would have on the plastic.

Orlando, Fla. W. D. Bixby

Plastic deteriorates under intense sunlight. That is why it is usually necessary to replace the outer "skin" of plastic each fall, after the hot summer months.

We have not heard of experience with plastic-type greenhouses in Florida, but it would be safe to say that it is necessary to renew the plastic more often.—Ed.

THEY KNOW it pays to package in film made of BAKELITE Polyethylene



Packages were made of VISQUEEN "C" film of **The Visking Corp.** by **Pacific Waxed Paper Co.**, Seattle 4, Wash.

"Good experience for apples encouraged us to try it on apricots and plums"

That's the case history of Herb Frank and Paul Lancaster, Yakima, Wash., fruit growers and warehousers. Here's what they have to say:

"Polyethylene is a wonderful material for packaging. Our good experience with it for apples encouraged us to try it on apricots and plums. Although in 1954 we shipped only part carloads in polyethylene bags on a trial basis, we are confident that *there will be an increased movement of soft fruit in polyethylene bags* in 1955." The picture, taken after their crops were marketed, shows the type of bags used.

This is another example of how one success leads to another . . . why more quantity and kinds of fruit and produce are being packaged in film made of BAKELITE Brand Polyethylene. You will find the same advantages . . . strength for easy filling and protection, excellent printability for brand identification right to the consumer, and freshness of product that can lead to premium prices. See your local packaging supplier for all the facts or for a free informative booklet, write Dept. GJ-67.

DID YOU KNOW: Pipe made of BAKELITE Polyethylene provides a new, easy, low-cost way to the finest farm water system. Pipe is easy to install with simple tools.

BAKELITE BRAND Polyethylene Plastic

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N.Y.

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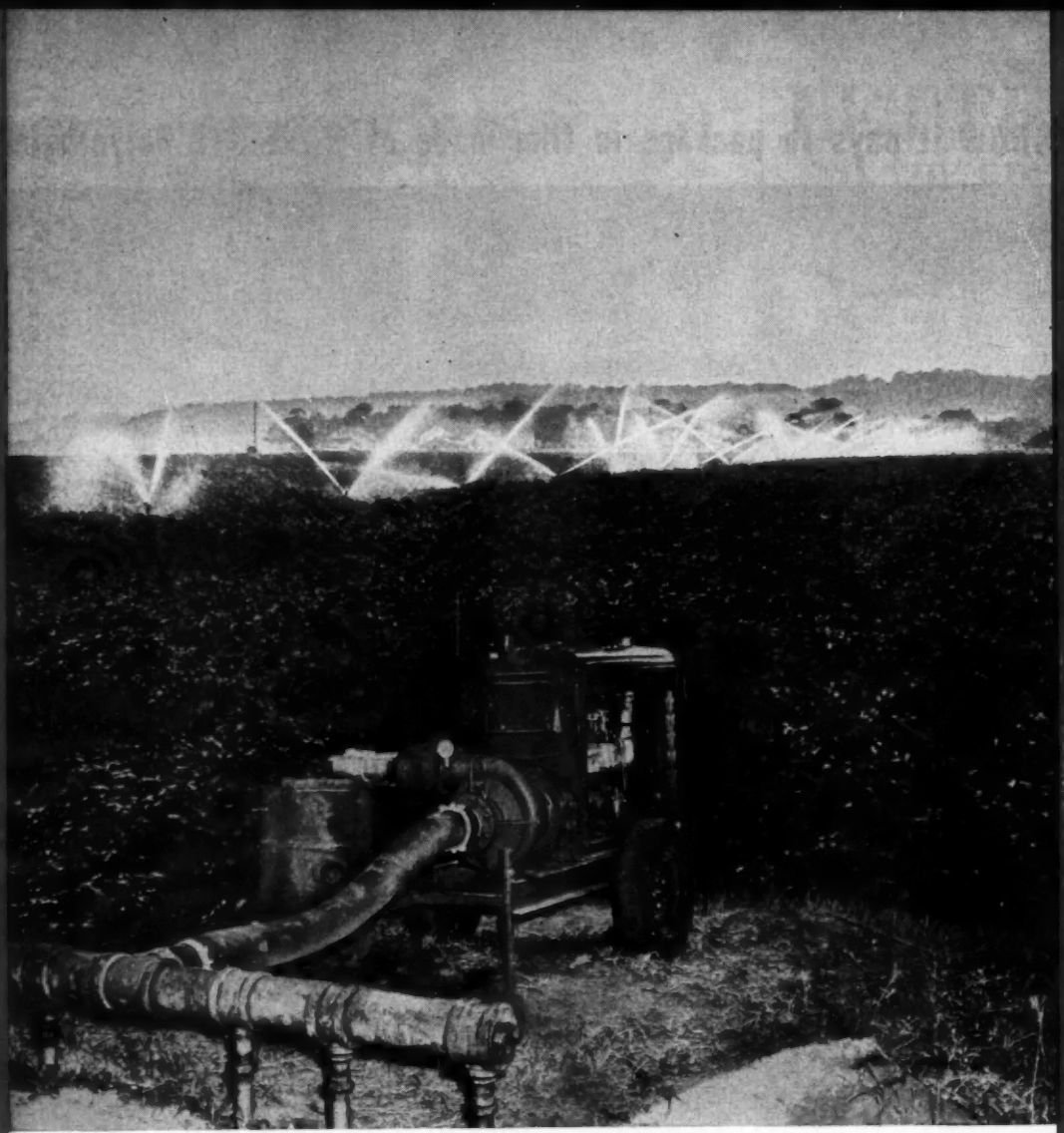


OVER 400 BUSHELS OF POTATOES PER ACRE—that's the record set by practically every truck farm last year in Suffolk County, Long Island, during one of the worst droughts in history of the area. Portable sprinkler irrigation was the answer to double the normal yield. With a Marlow Centrifugal Pump as the heart of the system, operating at high efficiency and at low cost, both fields and crops were kept *green and productive throughout the entire growing season.*

marlows do the job better!

Marlow Irrigation Pumps are engineered and built specifically for sprinkler irrigation service, that's why Marlows combine top performance with economy and easy, trouble-free operation. Marlow makes a broad range of models to meet every sprinkler irrigation requirement. A wide choice of power units is available, including electric motors, gasoline, L.P.G. or diesel engines. See your Marlow dealer today or write for Bulletin SI-53.

MARLOW PUMPS • RIDGEWOOD, NEW JERSEY

Division of BELL & GOSSETT COMPANY

Resistance moisture blocks and gauge, used to determine moisture in rather dry soils. Several blocks are usually placed at various depths in root zone.

Boring a hole for moisture sampling or for installing a tensiometer.

When installing resistance moisture blocks soil is saved and replaced after units are in place.

How Wet Is YOUR SOIL?

Various methods and devices are available to help you estimate the amount of moisture in your soils

By STERLING A. TAYLOR
Utah State Agricultural College

Checking the dial on a tensiometer. Tensiometers are best for measuring soil moisture tension in moist soils.

METHODS are now available for estimating the moisture in soil with almost any degree of accuracy that one might desire. The accuracy desired depends upon the reason for knowing the moisture status.

Growers frequently estimate the moisture in their soil to determine if it is proper for tilling, for planting, or for irrigating. The best method to use in each case is the simplest one that will give the desired information.

Color Test—One of the most commonly used tests and perhaps the simplest is to observe the color of the soil. Moist soils are darker than dry soils. There is a crude relation between the degree of darkness and the ease with which water can be removed from the soil. This test might be used to indicate proper moisture for planting.

Ball Test—Soils that look dry are frequently too dry for good tillage, and soils that look moist might be too wet. In such a situation, the "ball" test might be used to advantage.

If the moist soil forms a compact ball that does not readily break up when tossed in the air several inches and caught, the moisture content is optimum for compaction and the wise grower will avoid getting on the land with heavy tillage equipment. The moisture content is satisfactory for tillage if no ball can be formed or if the ball that is formed is fragile. When used by experienced growers, this test is an improvement over the color test.

The ball test might also be used as a rough estimate as to when to irrigate or how much water to apply; but most progressive growers employ a quantitative test. Many growers wait for the plant to show signs of wilting, such as a change in color from bright green to dark green, or drooping of the leaves, as an indication that water is needed. Unfortunately, plant growth has usually been considerably retarded before these symptoms are visible.

Plants must exert energy to pull the water from the soil, and their growth is directly related to the amount of energy required to get the needed water and to the rate at which this work of moisture removal must be done in order to prevent wilting.

Tension Tests—The simplest and probably the best available methods today to indicate with accuracy when to irrigate are based on direct measurements of the energy that must be expended in removing water from the soil. Instruments called tensiometers measure this energy directly. Unfortunately they operate successfully only in moist soils with moisture at tensions less than one atmosphere.

Resistance units measure the

(*Continued on page 22*)

Natural lakes and large ponds usually provide ample water for irrigation.

John Woodman, Paw Paw, Mich., has a 10-inch pump, capacity 800 to 1000 gp

Melvin Andr... berries in a ...

Are You Planning to IRRIGATE?

You can avoid a lot of headaches if you make sure, first, of your water supply

By JERRY H. MANDIGO

District Horticultural Agent, Southwestern Michigan

THE rapid growth of supplemental irrigation in Michigan and other midwestern states has presented many problems to the grower who is considering using irrigation for the first time. These problems are:

1) What are the normal needs of my crops?

2) What is the storage capacity of my soil?

3) What is the likelihood of rainfall during the growing season plus the storage reservoir in the soil failing to equal crop needs?

4) What is my most dependable and cheapest source of water supply?

5) What are my legal rights to use this water?

It doesn't take a great research mind to observe when a crop is suffering from lack of water or to know that the application of water often increases the crop yield. However, research people have estimated that most small fruit and vegetable crops need from 12 to 15 inches of water above the storage capacity of the soil, supplied as rain or supplemental irrigation during the growing season.

In the June, 1951, issue of *American Fruit Grower,* Dr. Wesley P. Judkins, of Virginia Polytechnic Institute, presented statements that will help the grower judge the water reserves in his soil in the spring or following a prolonged rainy period. These facts very briefly are:

1) Ten to 12 inches of dormant season rain will replenish the soil reservoir.

2) Usable storage water in a soil is limited to the effective root feeding area regardless of total soil depth.

3) There is a relation between soil type and available water-holding capacity.

Water-holding Capacity of Soils

Soil Type	Available acre-inches of water per acre-foot
Sand	0.5
Sandy loam	1.0
Silt loam	1.5
Clay	2.0

Strawberries on a sandy loam soil with most of the roots in the top 12 inches of soil would have 1 inch of available moisture, or a 7 to 10-day supply.

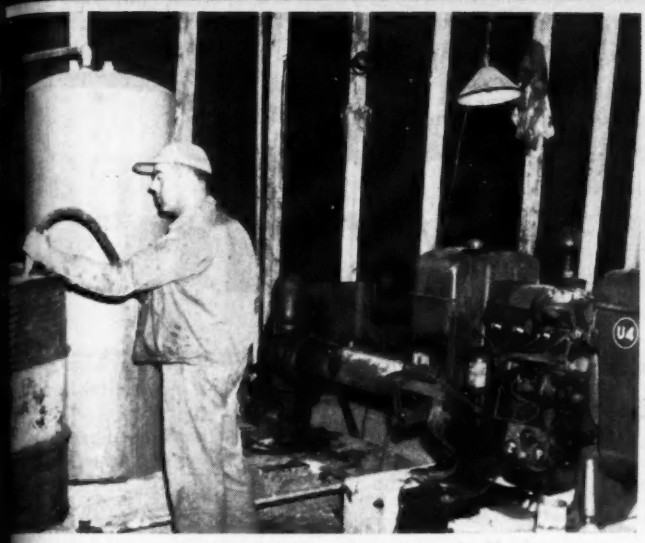
Another factor that needs to be considered is that on many soils and especially those on sloping sites a considerable per cent of the rainfall runs off and thus is not available to the plants.

Using the above facts, any grower can study rainfall distribution records for the growing season and soon see that there often are periods when neither soil moisture reserves nor summer rains supply crop needs. Of course, the lighter the soil texture and the shallower the root system, the more often the crop would suffer from shortages of available moisture.

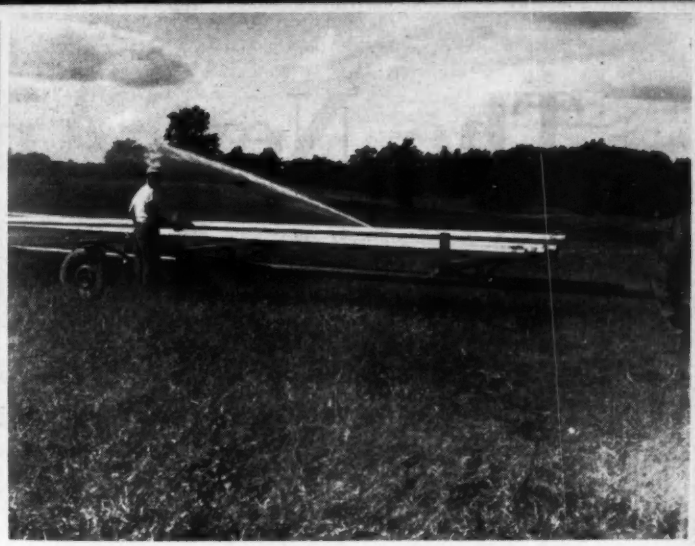
Growers in southwestern Michigan have found that in the drought years their source of irrigation water should be sufficient to supply 4 to 5 acre-inches of water during late May and June for strawberries and 5 acre-inches for potatoes and many other vegetables during July, August, and occasionally during September, depending on season and crop.

Growers using supplemental irrigation in southwestern Michigan have used many sources of supply. Lakes and large ponds have generally provided plenty of water. Points to look for are:

1) Is there a stream of sufficient size feeding the lake to maintain water level?



Melvin Andrus, South Haven, Mich., mixes fertilizer for his strawberries in a barrel before sending it out through his irrigation system.



A laborsaver is this skeleton truck which Wesley Hessler of Hessler and Son had built to move irrigation pipe easily.

2) Is the water level maintained by dependable underground seepage?

3) Is the watershed feeding this lake or pond, with about 13 inches of runoff per year, large enough to maintain the water level?

The larger streams have generally provided plenty of water if these conditions are met and if the number of water users is not too great. Several growers pumping from 400 to 1,000 gallons per minute can soon exhaust the flow of a fairly large stream. Several Allegan County growers pumping from the Black River soon found that their demands exceeded the supply.

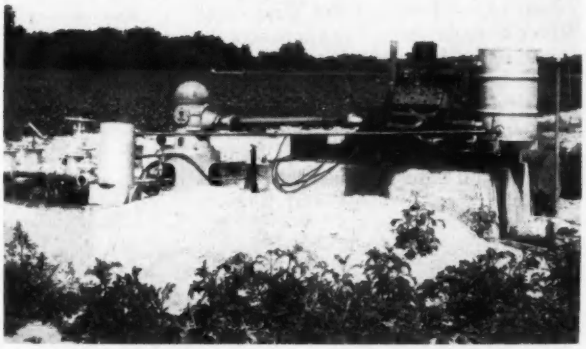
Artificial irrigation ponds are increasing in number. These ponds are seldom large enough to store all the water needed for the season. Runoff water is not present to refill these ponds during periods when irrigation is needed. These ponds must be refilled by surface flow or seepage from adjoining low or swampy lands, or have under-seepage through sand or gravel layers at the bottom of the pond.

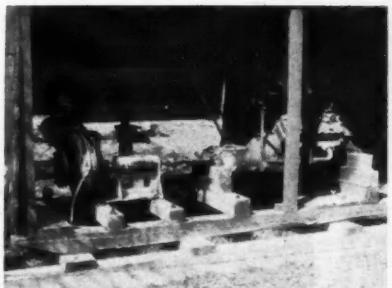
A series of hand-driven shallow wells all connected to one centrifugal pump have worked well, under certain conditions. These successful systems have all had a high water table such as is present in local blueberry plantings.

The deep well has proved the most dependable source of supplemental irrigation water in this area even though it is often the most expensive. These wells are successful because most of this area is underlaid with between 100 to 200 feet of "glacial drift." This usually provides coarse sand or gravel as a place for setting the deep well screen.

In some areas near Lake Michigan the fine sand extends so deep that irrigation wells are not effective. Many 6-inch wells are providing 400 to 500 gallons per minute, which will irrigate about 30 acres of crops. The 10 and 12-inch wells are capable of a flow of 400 to 2,500 gpm depending on the coarseness of the gravel surrounding the screen, and the depth of the water-bearing material.

Edwin Parmeter, Rockford, Mich., relies on three wells on his farm to supply water for irrigating potatoes, tomatoes, and cucumbers.





This equipment, used to pump water from lake, was made idle by neighbors' complaints. Hessler and Son drove a well. Now everybody's happy.

The legal rights to irrigate from surface water such as lakes and streams in Michigan and several other eastern states haven't been definitely established. In case of court action it is probable that Michigan courts would, as other states have done, follow the riparian doctrine of water use. Strictly interpreted, riparian owners (those whose property is bounded or traversed by a stream or other natural body of water) enjoy the right to have water flow by or through their lands undiminished in quantity and unpolluted in quality except for its use by upstream owners for domestic purposes. They may use the water for purposes such as fishing, bathing, navigation, and in some cases, power. But except for domestic and stock-watering purposes, they are not entitled to divert or appropriate water from riparian sources.

The Supreme Court has already held that 1) Each riparian owner's rights are qualified by the rights of the other riparian owners with whom he shares the use of the available supply of water. 2) Lower riparian owners cannot acquire priority in water use as against upper owners by prior appropriation or first occupancy. 3) Riparian owners have no legal right to hold back the flow of streams or to appropriate surface waters from a stream or lake if their action brings injury to lower riparian owners.

If you are using underground water as from a deep well there are few legal problems unless your pumping activities lower the water table enough to adversely affect your neighbors' water supply. THE END

The New Approach to IRRIGATION

By including water in your regular cultural program you can grow more plants per acre, get bigger yields

By JOHN A. CAMPBELL
Mississippi Truck Crops Experiment Station

SUPPLEMENTAL irrigation has been used and is regarded as an insurance against drought with vegetable crops. Most of the cultural practices used east of the Mississippi River were determined experimentally without the full use of irrigation and under conditions that are commonly referred to as "normal." These practices include rate and kind of fertilizer application, spacing of plants, method and date of planting or transplanting, weed control, and time required from planting to harvest.

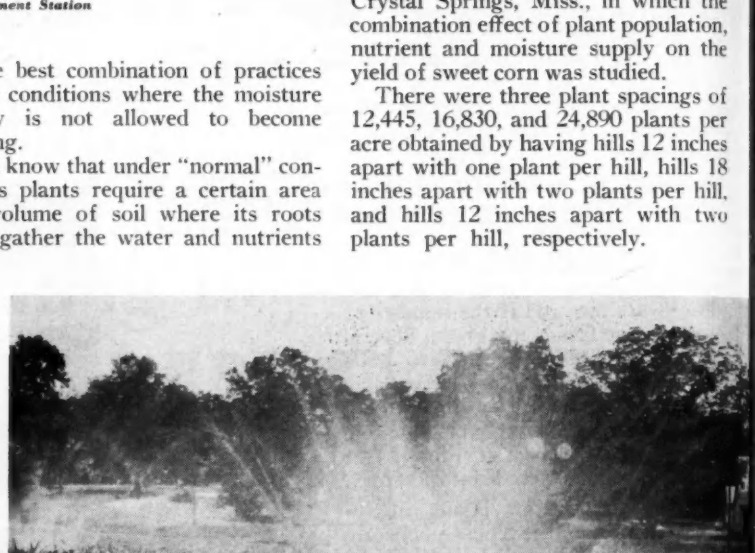
These factors have been used or studied individually and in various combinations to determine the best combination of practices. Unfortunately, the minimum moisture supply was not controlled in determining the combination of practices which give maximum yields in all cases. As a result, research workers and growers alike are beginning to think in terms of the best combination of practices under conditions where the moisture supply is not allowed to become limiting.

We know that under "normal" conditions plants require a certain area and volume of soil where its roots must gather the water and nutrients required for best growth and production. When either the nutrients or water or both become limited the plants compete for the supply that is available. As the plant population increases the competition is increased and each plant gets less of the things required to produce maximum or profitable yields. Therefore, it follows that in order to get maximum profitable yields we must adjust the plant population, plant nutrient and water supply as far as profitable increased yields will permit.

In order to test this line of reasoning an experiment was conducted at the Truck Crops Experiment Station, Crystal Springs, Miss., in which the combination effect of plant population, nutrient and moisture supply on the yield of sweet corn was studied.

There were three plant spacings of 12,445, 16,830, and 24,890 plants per acre obtained by having hills 12 inches apart with one plant per hill, hills 18 inches apart with two plants per hill, and hills 12 inches apart with two plants per hill, respectively.

Left—Sweet corn suffering from drought at critical time when water would mean the difference between profit and no profit.



Above—Sweet corn being irrigated at period of growth when effect of water on yield is greatest

To each of these plant spacings, 500 pounds of 6-8-8 fertilizer per acre were applied in the drill before planting. Three different levels of nitrogen were applied as sidedressing, consisting of 32, 64, and 96 pounds of nitrogen per acre. Each of the plant spacings also received 1,000 pounds of 6-8-8 fertilizer per acre sidedressed with 34 pounds of nitrogen.

Each of these treatments was split so that one-half of the plots received water when needed and the other half was not irrigated. Two acre-

(*Continued on page* 24)

STATE NEWS

- **Birds in Maryland Fields Get Noisy Salute!**
- **Ohio Growers Plan Big Exhibit to Educate State Fair Visitors**

No More Bird Damage

MARYLAND—Fireworks are popping throughout the vegetable fields of the state—to salute the birds! A recently-passed amendment to Maryland's fireworks law permits growers to use bombs, cherry bombs, and salutes to frighten birds away.

Firming whole canned tomatoes: A quick dip in a cold five per cent calcium chloride solution after peeling was shown by Dr. A. A. Kattan (formerly of the University of Maryland) to give better and more uniform results than adding the calcium chloride to the can.

Norman and Jim Glime, of Federalsburg, Caroline County, are well on their way to another successful season growing hydro-cooled sweet corn.

Plantings of the variety Victory Golden will be scheduled according to the heat summation method. Tons of high-analysis fertilizer, a 1,000 gpm irrigation system, high clearance insecticide sprayer, weed sprayer, 14-row harvesting conveyor, giant hydrocooler, and supplementary refrigerated storage and insulation truck are all ready to go into action.

Norman and Jim have designed and built most of their equipment. Parts which they can't buy they make in their farm shop. They are real do-it-yourself vegetable growers who produce top-quality fresh corn sold under the Norjas brand.—*A. A. Duncan, Ext. Veg. Spec., College Park.*

Plan Fair Exhibit

OHIO—Ohio Vegetable and Potato Growers Association is planning its biggest exhibit in recent years at the state fair, to be held in Columbus August 26-September 2. Reason for the stepped-up interest: statistics show that 75 per cent or more of the fair visitors are city and town folks—and potential customers.

Committee members include Leonard Bettinger, Swanton; Willard Brem, Coshocton; Clinton Seitz, Cincinnati, and Walter Hollis, William Fornof, and Leo Goffin, Columbus.—*E. C. Wittmeyer, Sec'y, Columbus.*

New assistant manager of the Ohio Potato Growers Association is W. W. "Walt" Hollis, Westerville. The statewide growers' marketing organization, with offices at 3292 N. High St., Columbus, markets a good share of the Ohio potato crop. —*V. E. Keirns, Gen'l Mgr., Columbus.*

Cleveland Women's Auxiliary of the VGAA has elected Mrs. Nelson E. Walter, Columbia Station, president. Her husband operates the N. E. Walter & Son Greenhouse.

Other officers are Mrs. F. O. Colbrunn, Columbia Station, vice-president, and Mrs. Ben Mitchell, Avon, secretary-treasurer.

Dry Subsoils

IOWA—The subsoils are good in Iowa, but this spring they are dry and much less reliable than usual. We get our best crops when subsoils are dry at planting time, roots run deep, and enough rain comes during growth. However, subsoil moisture is sure; later moisture is a gamble.

In spite of low onion and potato prices the past sales season, at least 15 Iowa vegetable-growing couples enjoyed 1 to 4 months' vacations in sunny climates this winter.

Sam Kennedy & Sons, Clear Lake, planted an average of 25 acres of potatoes per day using a 4-row high speed Iron Age planter and a new Caterpillar crawler. Likewise, their onions went in at the rate of 20 acres a day. Both gangs consisted of two men each, who were also planting 200 acres of sugar beets. They planted 800 acres of row crops at this rate.

Large trials of 100 acres were made with CATECHOL, the new dust treatment that grows new skin on cut seed and prevents seed decay. They are being watched with interest.—*C. L. Fitch, Sec'y, Ames.*

VGAA Self-Help Program

Jim Swan, Delavan, Wis., president of the Vegetable Growers Association of America, has announced that the association is making available a new booklet on the VGAA self-help programs. The pocket-sized booklet is entitled *Guide to the Good Story of American Agriculture's Free Enterprise Self Help Program*, and gives complete plans for developing and operating a National Vegetable Week Program, a Vegetable Queen contest, and details of Vegetable News Master Awards, which the association presents annually for the best news dissemination programs developed by all media. For your copy, write to Vegetable Week, Preston, Md.

Tomato Acreage

INDIANA—Acreage of commercial canning tomatoes shows a slight increase over 1954. The average contract price for U.S. No. 1's is about $32, and for U.S. No. 2's, $18. Acreage estimate is 30,000.

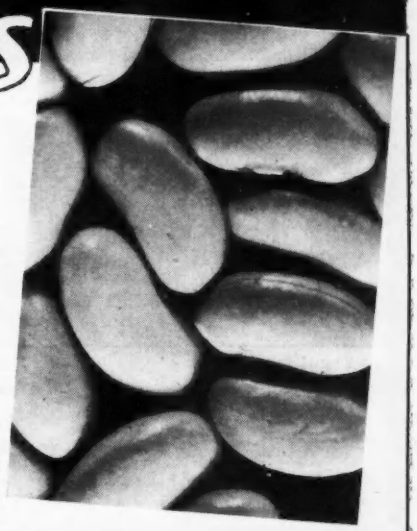
Television panelists on "I've Got a Secret" May 4 were confronted by Purdue

(*Continued on page* 18)

KNOW YOUR VEGETABLE SEEDS

By VICTOR R. BOSWELL
U. S. Department of Agriculture

SNAP BEANS



SNAP bean seed is second only to pea seed in total tonnage produced and planted in this country and in quantities and costs involved for planting an acre. During the year 1952-53 some 27 million pounds were grown on nearly 21,000 acres—about a third less than were grown annually from 1947 to 1951 on 37,000 acres. Pole and wax bush varieties each account for about 15 per cent of the total, the remainder being green bush varieties. Seed snap beans are grown on about one-tenth as many acres as snap beans for market and processing.

Bean seed from irrigated districts of the West is much preferred to seed from humid districts because it is much less likely to carry such diseases as anthracnose, bacterial blight, and ashy stem blight.

Seed beans are highly susceptible to mechanical injury. The presence of broken beans in a lot or of many beans with cracked seed coats suggests that the seed has been roughly handled and damaged to some degree, and therefore that it will produce many imperfect seedlings and relatively unproductive plants.

Learn to look for tiny injuries, and learn to handle seed beans with care. Dropping a bag of beans on the floor will probably damage many of the seeds, especially those nearest the floor. The dryer the beans may be, the more seriously they are damaged by shock.

Viability of seed beans decreases rather rapidly in warm, humid climates. To carry seed over to the next season it must be stored in a cool dry place. Extreme dryness, however, as may prevail in a building heated during cold weather, may induce hard seed coats which in turn may retard or prevent germination.

The
"Stainless-Steel Streamliner"
The World's Most Modern Concentrate Sprayer

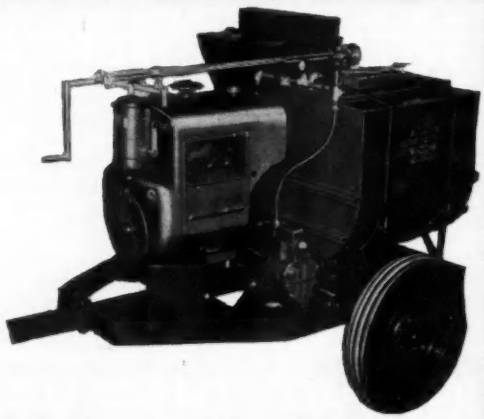
200 Gallon
Stainless-Steel Tank

Empty Weight
Less Than One Ton

The Tried, Tested and Approved "BUFFALO TURBINE"
COMBINATION SPRAYER AND DUSTER

Large Enough
For The
BIG GROWER

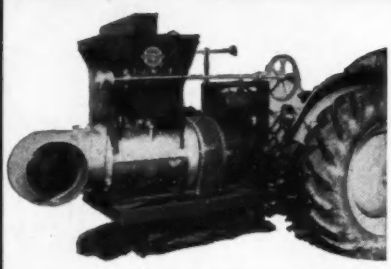
Within The Price
Of The
SMALL GROWER



50 or 100 Gal. Tank
Skid or Trailer Model

For Orchard or Row Crop Spraying and Dusting

The "Buffalo Turbine" 3 Point Duster



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ALL TRACTORS

The most powerful duster covering the greatest area on the market today. The "Buffalo Duster" has its own power and may be used on tractor-truck or jeep.

The Exclusive
"BUFFALO TURBINE"
Axial-Flow Blower
Used in All Models
Prices Start At Less Than $1,000

BUFFALO TURBINE
AGRICULTURAL EQUIPMENT CO. INC.
GOWANDA, NEW YORK

Gentlemen—Please send me full information on the Buffalo Turbine Sprayer-Duster.

I have approximately.....acres

in fruit consisting mostly of.....

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Signed .....

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☐ Please arrange a demonstration.

Answering Your QUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a three-cent stamp for early reply to Questions Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

PRUNING TOMATO PLANTS

When and how should tomato bushes be pruned to speed up the bearing of fruit and get the earliest ripe tomatoes?—*Minnesota.*

There is some evidence to show pruning of tomato plants will bring forth a little earlier fruit, but the only practical advantage would be to conserve space.

Orrin Turnquist of the University of Minnesota suggests that you secure early varieties that have a bush-type habit of growth, such as Cavalier, Meteor, Mustang, Victor, or early Chatham. The farther north, the better adapted the bush type varieties are becoming.

WEED CONTROL IN ASPARAGUS

I have a lot of pig-weed and also red-root in my large asparagus bed. What can I use to control these weeds?—*New York.*

Robert D. Sweet of Cornell University recommends the use of CMU, sold under the trade name of Karmex W, in your asparagus bed. It is a product put out by DuPont, and should be available through your local feed, seed, and fertilizer dealer.

Two applications of CMU are suggested, one prior to cutting and the other following cutting, with one pound per acre per application on light sandy soils. Double this rate on soils high in organic matter and muck soils. Through the courtesy of Dr. Sweet we are forwarding the Cornell Weed Control Chart for 1955.

CALHOUN SWEET WATERMELON

Where can I obtain Calhoun Sweet watermelon seed?—*Michigan.*

Seed is available from Tyner Petrus & Co., W. Monroe, La.; and Reuters Seed Co., New Orleans, La.

RANGER BUSH-BEAN

In March Questions we located for a New York reader a supply of Ranger bush-bean seeds. Our information source advised Associated Seed Growers, Inc., 205 Church St., New Haven, Conn., as probably the only supplier. We have since learned that Ranger bush-bean is also available from the Cornell Seed Co., 101 Chouteau Ave., St. Louis, Mo., who list the Ranger on page 9 of their descriptive catalog.—Ed.

CONTROLLING WEEDS IN BERRIES

Could Crag herbicide and 2,4-D be mixed for better weed control in my berries?—*Iowa.*

There would be no advantage in mixing Crag herbicide and 2,4-D since 2,4-D works like Crag herbicide in killing germinating weed seeds in addition to those weeds that are up. According to R. F. Carlson, Michigan State College, 2,4-D should be used only as a last resort in the first year planting when weeds emerge before Crag herbicide is applied. Use Crag herbicide before the weeds come up and 2,4-D on weeds that are up. Crag herbicide is not very effective on weeds that are up above one-half inch.

COLD FRAME HARDWARE

Where could I obtain the hardware fixtures pictured in the article, "The New Look in Hotbeds and Cold Frames" which appeared in the March, 1955, issue of AMERICAN VEGETABLE GROWER?—*Wisconsin.*

The photographs were taken at the farm of Herman Richardson, St. Elmo, Ill. Perhaps a letter to him will bring an answer to your question.

GORMAN-RUPP Irrigation PUMPS

IRRIGATION PUMP
TRAILER PUMPER for FARM TRACTOR P. T. O. DRIVE
MODEL 63A-G 3 inch
IRRIGATION PUMP MODEL 6201
IRRIGATION PUMP MODEL 54A-VG4D
IRRIGATION PUMP MODEL 5AM-134
IRRIGATION PUMP MODEL 55M-IND24A
GORMAN-RUPP ORIGINATES! OTHERS IMITATE!

GORMAN-RUPP IRRIGATION PUMPS

Made in Various Sizes. G.P.M. varies with lbs. pressure. Continuous operation ranges follow. (Max. performance 15% to 20% greater.)

MODEL	ENG. MODEL	ENG. MFGR.	RECOMMENDED CAPACITY AND PRESSURE RANGE
For use with Farm Tractor Power Take-off Drive			
63A-G	3 inch Pump		Range varies with R. P. M.
64A-G	4 inch Pump		and H. P. of Tractor
Gasoline Engine Driven			
6201	23FB	B. & S.	80 gpm @ 80 lbs. - 175 gpm @ 40 lbs.
6301	23FB	B. & S.	135 gpm @ 50 lbs. - 315 gpm @ 20 lbs.
53M-TFD	TFD	Wisc.	140 gpm @ 70 lbs. - 300 gpm @ 35 lbs.
53H-VF4D	VF4D	Wisc.	225 gpm @ 85 lbs. - 400 gpm @ 40 lbs.
54A-VG4D	VG4D	Wisc.	225 gpm @ 95 lbs. - 550 gpm @ 50 lbs.
54M-134	CJ3A	Willys	250 gpm @ 120 lbs. - 600 gpm @ 55 lbs.
54M-CJ3A	CJ3A	Willys	250 gpm @ 105 lbs. - 600 gpm @ 55 lbs.
54B-6FB	6FB	Willys	325 gpm @ 120 lbs. - 800 gpm @ 50 lbs.
55A-265	IND-32	Chrysler	500 gpm @ 155 lbs. - 950 gpm @ 75 lbs.
55A-IND32	IND-32	Chrysler	500 gpm @ 150 lbs. - 925 gpm @ 75 lbs.
55M-IND24A	IND24A	Chrysler	600 gpm @ 160 lbs. - 1350 gpm @ 70 lbs.
55H-TDXC	TDXC	Herc.	800 gpm @ 160 lbs. - 1400 gpm @ 90 lbs.
610L	D-201	LeRoi	1250 gpm @ 45 ft. - 3500 gpm @ 22 ft.
612L	TDXC	Herc.	2250 gpm @ 60 ft. - 5250 gpm @ 22 ft.
Diesel Engine Driven			
55A	188D	Oliver	350 gpm @ 85 lbs. - 850 gpm @ 45 lbs.
55M	199D	Oliver	450 gpm @ 85 lbs. - 1100 gpm @ 65 lbs.
54A	DIX6D	Herc.	475 gpm @ 127 lbs. - 975 gpm @ 60 lbs.
55H	3031	G. M.	550 gpm @ 110 lbs. - 1300 gpm @ 60 lbs.
55H	4031	G. M.	550 gpm @ 110 lbs. - 1400 gpm @ 75 lbs.
55T	2031	G. M.	350 gpm @ 120 lbs. - 725 gpm @ 60 lbs.
55T	UD9A	Int. Harv.	325 gpm @ 135 lbs. - 825 gpm @ 75 lbs.
55T	DIX6D	Herc.	350 gpm @ 165 lbs. - 825 gpm @ 65 lbs.
55T	3031	G. M.	300 gpm @ 155 lbs. - 825 gpm @ 80 lbs.
55T	UD16A	Int. Harv.	300 gpm @ 165 lbs. - 900 gpm @ 80 lbs.
55T	4031	G. M.	300 gpm @ 165 lbs. - 900 gpm @ 95 lbs.
55T	188D	Oliver	250 gpm @ 105 lbs. - 700 gpm @ 45 lbs.
55T	199D	Oliver	250 gpm @ 140 lbs. - 750 gpm @ 75 lbs.
610L	UD-6A	Int. Harv.	1250 gpm @ 55 ft. - 3750 gpm @ 21 ft.
612L	UD-18A	Int. Harv.	2500 gpm @ 65 ft. - 6000 gpm @ 25 ft.

THE GORMAN-RUPP CO.
MANSFIELD, OHIO

MAIL THIS COUPON

GORMAN-RUPP CO., Mansfield, Ohio

I want to know more about Engineered Irrigation.

Name .....

Address..... Co. ..... State.....

Irrigation Acreage Estimate ..... Acres

Lake ☐ River ☐ Ditch ☐ Ponds ☐ Well ☐

FAST, ECONOMICAL CROP PROTECTION

New Aircrop Sprayer Attachment in action. Note 60' swath and even spray distribution.

spray **20** **ROWS** *with each pass* *. . . or* **6**

Trailer-mounted John Bean sprayer with 6-row boom does a fast, thorough spray job.

whatever your needs

YOU'LL BE AHEAD WITH A JOHN BEAN SPRAYER

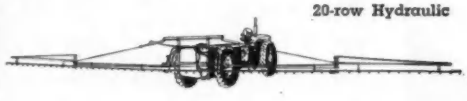
Considering air-type vs. boom spraying? Need a high clearance sprayer . . . or a trailer-mounted unit adjustable for varying crop heights and row widths? Want PTO or engine power? Or are you simply looking for a pump, boom or air-type conversion unit to add to present equipment?

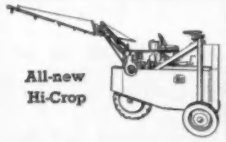
Whatever your needs, there's a John Bean unit that's made to do the job right . . . by the people who've been the "leaders in sprayers" since 1883.

Remember . . . the heart of a sprayer is the pump. There's none better made than the John Bean Royal and Royalette . . . the pumps with the diamond-honed, sapphite cylinders that handle the most abrasive mixtures and *"last a lifetime!*

12-row Royal "35"

20-row Hydraulic





All-new Hi-Crop

32 ft. Right-Way

Write for the new catalog of John Bean Row-Crop Sprayers

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John BEAN LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

CALENDAR OF COMING MEETINGS AND EXHIBITS

July 16—New Jersey State Horticultural Society summer meeting, Agr. Exp. Sta., New Brunswick.—Ernest G. Christ, Sec'y, New Brunswick.

June 19-22—Idaho Shippers Association annual summer meeting, Grand Teton Lodge, Moran-Jackson Hole, Wyo. Edd Moore, Exec. Sec'y-Mgr., Idaho Falls.

July 27-28—Pennsylvania Potato Growers, Inc., field days, Potato City.—James A. Hannah, Sec'y, 5235 N. Front St., Harrisburg.

July 28-Aug. 6—7th annual National Vegetable Week, sponsored by VGAA.

Aug. 1-3—United Fresh Fruit and Vegetable Association, 7th annual Merchandising Conference, Conrad Hilton Hotel, Chicago. Assn. hdqtrs: 777 14th St., N.W., Washington 5, D.C.

Aug. 4—Empire State Potato Club, Inc., 22nd annual field day, Bridgewater, N. Y.—Philip Luke, Pres., R.D. 3, Fulton, N.Y.

Aug. 8-10—North Central Division of American Phytopathological Society summer meeting, Woster, Ohio.—H. C. Young, Ohio Agr. Exp. Sta., Wooster, Ohio.

Aug. 9—Darke County Potato Field Day, Virgil Royer farm, near Arcanum, Ohio.

Aug. 9—Indiana State Vegetable Growers Association summer meeting and field day, Purdue University, Lafayette.—F. C. Gaylord, Sec'y, Lafayette.

Aug. 9-11—Ohio Pesticide Institute Summer meeting and field tour, Wooster and various points in northern Ohio.—J. D. Wilson, Sec'y, Wooster.

Aug. 11-Sept. 25—Vegetable Growers Association of America tour visiting England, Holland, Belgium, Germany, Switzerland, and France, including attendance at 14th International Horticultural Congress, Scheveningen, Holland, Aug. 29-30. Tour conducted by Walter F. Pretzer, American Express Company, 1425 Euclid Ave., Cleveland 15, Ohio.

Aug. 16-20—Centennial of Farm Mechanization, Michigan State College, East Lansing.—A. W. Farrell, Head Agr'l Engng. Dept., MSC, East Lansing.

Aug. 17—Annual Horticultural Field Day, Kansas State College Horticultural Farm, Manhattan.—Wm. G. Amstein, Sec'y, Manhattan.

Aug. 17—Wayne County Potato Field Day, Smithville, Ohio (morning) and Wooster, Ohio (afternoon).

Sept. 19-21—Texas Citrus and Vegetable Growers and Shippers, Inc., Shamrock Hotel, Houston.—Austin E. Anson, Exec. Mgr., 306 E. Jackson, Harlingen, Tex.

Oct. 4-6—Florida Fruit & Vegetable Association annual convention, Hotel Fontainebleau, Miami Beach.—Geo. Talbott, 29 S. Covit St., Orlando.

Oct. 9-11—Produce Packaging Association, 1955 Convention and Exposition, Conrad Hilton Hotel, Chicago, Assn. hdqtrs: 500 Fifth Ave., New York 36, N.Y.

Oct. 10—South Carolina Fresh Fruit and Vegetable Association annual convention, Hotel Wade Hampton, Columbia.—B. I. Raybon, sec'y, Unit 55B, State Farmers Market, Columbia.

Nov. 1-3—Florida State Horticultural Society 67th annual meeting, Fort Harrison Hotel, Clearwater.—Ernest L. Spencer, Sec'y, Bradenton.

Nov. 16-18—Western Growers Association convention, Westward Ho Hotel, Phoenix, Ariz. Association headquarters: 606 S. Hill St., Los Angeles 14, Calif.

Dec. 1-2—Iowa State Vegetable Growers' Association 42nd annual convention, Hotel Hanford, Mason City.—C. L. Fitch, Sec'y, Ames.

Dec. 5-8—Vegetable Growers Association of America 47th annual convention, Sheraton-Park Hotel, Washington, D. C.—Joseph S. Shelly, Sec'y, 528 Mills Bldg., Washington 6, D.C.

Jan. 30-Feb. 2, 1956—United Fresh Fruit and Vegetable Association annual meeting, Hotel Roosevelt, New Orleans, La. Association headquarters: 777 14th St., N. W., Washington, D.C.

Feb. 13-15, 1956—Ohio Vegetable and Potato Growers Association 41st annual convention, Hotel Cleveland, Cleveland.—E. C. Wittmeyer, Sec'y, Columbus.

Stauffer CAPTAN 50-W

the MOST for your MONEY!

Stauffer CAPTAN is the *best* protection ever offered by any fungicide! Effective against a great variety of parasitic fungi diseases of vegetables, fruit, and ornamentals.

Stauffer CAPTAN 7.5 DUST, for those who prefer it, or as a "fill-in" during spray programs.

Stauffer CAPTAN 75-W is a microfine wettable powder formulation specifically designed for use in seed treatment, either as a dust or slurry.

Stauffer CAPTAN has proved itself effective for control of damping-off on seedlings of tomato, celery, peppers, egg plant, cabbage, broccoli, and cauliflower.

Stauffer CAPTAN is economical. Increased yields of improved vegetables are now an accepted result, when CAPTAN is used. Add the many advantages deriving from greater crop output — realize what they mean in INCREASED MARKET VALUE—and you will *know* you are getting the *most* for your money with STAUFFER CAPTAN PROTECTION!

STAUFFER CAPTAN CONTROLS THESE DISEASES:

TOMATO: Alternaria (Early Blight), Septoria, Phytophthora (Late Blight), Anthracnose, Stemphylium.

CUCURBITS: Angular Leaf Spot, Anthracnose, Downy Mildew

POTATO: Early and Late Blight.

CARROT: Septoria and Cercospora.

BEANS and PEAS: Damping off on Beans and Root Rot on Beans and Peas.

Folders Completely Describing Captan Recommendations Are Available

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Agricultural chemical research in STAUFFER laboratories across the nation constantly seeks to prove and improve products. From rigid laboratory tests, through pilot plant production and extensive field trials, new STAUFFER products are thoroughly evaluated and perfected before commercial quantities are offered to agriculture. Eminent plant pathologists, entomologists, and agronomists serve you, through each STAUFFER agricultural product.

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"STAUFFER --- the name growers profit by!"

NO MITES mean better crops!

kill and control mites with

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There's more money for you from better crops. A small per-acre investment in Aramite can make a big dollar difference. Year after year, field results nationwide prove the bigger and better yields you can expect with Aramite—the safest, best-known mite-killer today.

Aramite gives outstanding control of most mite species including Two-Spotted, Atlantic, and European Mites. Equally effective on melons, citrus, corn, tomatoes, apples, peaches, and ornamentals. It is compatible with most insect and fungus-killing chemicals, has longer residual activity and is non-hazardous to humans and animals.

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producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

STATE NEWS

(*Continued from page* 13)

University horticulturist Dr. E. C. Stevenson. His secret? He produces seedless watermelons!

New marketing specialist at Purdue University is Dr. Rawlin Dunsdon, from the USDA, Washington, D.C. He began work in the department of agricultural economics April 1.—*F. C. Gaylord, Sec'y, Lafayette.*

New Pathologist

MICHIGAN—Dr. William Hooker has joined the botany and plant pathology department of Michigan State College. Formerly of Iowa State College, he will work on potato and onion disease problems.

Ed Weesies, of Montague, was re-elected president of the Michigan Celery Promotion Association. John Van Timmeren, of Allendale, was chosen vice-president, and Howard Trapp, of Beulah, was re-elected secretary-treasurer.

More people will be eating Michigan celery as a result of a promotional program by the Michigan Celery Promotion Association. Also co-operating are the new state marketing agencies.

Newspapers, radio, and television, as well as point-of-sale material will be used in Michigan and surrounding states.

Following the trend of the past few years, plantings of Pascal celery are expected to increase, while fewer acres of Golden Heart will be planted. Ideal April weather conditions got early plantings off to a good start.—*Howard Trapp, Sec'y, Beulah.*

Early Plantings

WISCONSIN—Much of the potato and vegetable planting is now completed. We have about 53,000 acres of potatoes planted and fields are showing excellent stands and good growth.

With the season ahead of normal, growers have been able to get their planting done with a minimum of delay. Many growers in the northern potato areas tell us that this is one of the earliest springs on record. The potato crop shows much promise in terms of good production, and growers feel that good prices, at least for the early crop, are in the offing.

Muck land growers also got off to an early start in most areas. We have over 2,000 acres of onions as well as substantial acreages of carrots, beets, head lettuce, potatoes, and other muck crops planted in the central and southern muck areas.

Many growers have turned to hybrid onion varieties, at least on a trial basis. A properly selected hybrid onion suited to the area in which it is grown, can furnish the grower with higher yields, early maturity, and better storage and handling qualities.

With seed of some of the newer USDA hybrids available in fair quantity for 1956 plantings, we expect a substantial increase in hybrid acreage next year.—*John A. Schoenemann, Ext. Specialist, Vegetable Crops, Madison.*

Tomatoes Set Record

FLORIDA—Shipments of vegetables moved at a high level during April, with a record movement of tomatoes occurring during this period. The volume of such crops as snap beans, cabbage, and squash declined sharply in May, while celery, corn, potatoes, and tomatoes were expected to continue in good volume. Watermelon shipments are gradually gaining momentum and will reach their peak this month.—*George M. Talbott, Agr'l. Field Representative, Orlando.*

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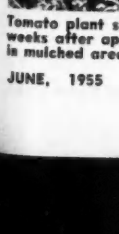

Tomato plant s
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PAPER MULCH Controls Weeds

By
C. L. HAMNER and G. S. RAI
Michigan State College

WEEDS can now be controlled by applying a paper pulp mulch around vegetable plants.

Mulching as a method of weed control had been tried in the past, but was never satisfactory. Straw, hay, and manure did not cover the ground completely enough.

We developed the new paper pulp method from one used by Hawaiian pineapple and sugar cane growers, who lay continuous strips of paper alongside the plants.

The new method consists of soaking waste newspaper material in sufficient water for 1 or 2 days until it can be shredded easily.

It is then pulverized mechanically to get a homogeneous mixture of paper "pudding," which is spread around the plant, 12 inches on either side. The excess water either soaks into the soil or evaporates, leaving a cardboard-like crust which completely excludes light.

Applications of paper pulp mulch to tomato and cabbage plants in June, 1954, resulted in good plant growth and weed-free plots.

The non-toxic mulch can be applied to any vegetable crop, but is best-suited to short-season crops.

The paper mulch also prevents leaching, moisture loss, and surface erosion. It has no toxic effect on soil microbes, therefore does not upset the biological balance in the soil.

Unlike weed control with chemical herbicides, it does not require modification of regular cultural practices. The mulch has no harmful effect on soil or crop growth and can be used any time.

With the mulch it is also possible to incorporate fertilizers, insecticides, fungicides, and herbicides.

Before the method is feasible on a commercial scale, a machine must be devised which will pulverize the paper and at the same time cover the soil effectively. THE END

Tomato plant surrounded by paper pulp mulch, 5 weeks after application. Note absence of weeds in mulched area, lush weed growth outside area.

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This new Hardie Row Sprayer is mounted directly on the tractor. Removable pump and boom assembly permits the use of the two 150 gallon tanks with transplanting equipment. It's a strictly one-man unit. Can be used only with Ford and Ferguson tractors. Delivered complete with Hardie Fold-rite boom and all necessary parts for 3-point mounting. An exceptionally attractive price.

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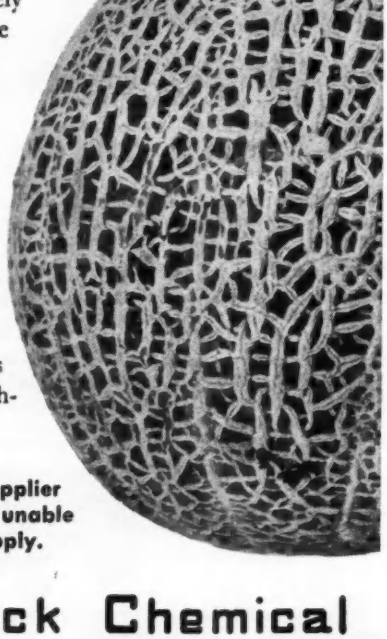
Country-wide usage conclusively proves: (1) Alanap-1 can save growers of cantaloupes, watermelons and cucumbers from $35 to $150 per acre in weeding costs. (2) One pre-emergence application of Alanap-1 gives excellent control of a wide variety of weeds for 3-8 weeks—even after heavy rains. (3) Alanap-1 is safe on recommended crops, non-hazardous to humans and animals and is easy to apply. This season you can't afford to be without Alanap-1.



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US RUBBER

Irrigating Russet Burbanks on light sandy soil at Okray Produce Co. farm in Wisconsin in July.

Follow this program and you will do a better job of

IRRIGATING POTATOES

By JOHN A. SCHOENEMANN

University of Wisconsin

IN the potato growing areas of eastern and central United States, the amount and distribution of rainfall are two of the most important factors involved in producing a crop. Since the grower has no control over these, proper irrigation of potatoes can serve as a form of crop-yield-and-quality insurance during seasons of low or poorly distributed rainfall.

The use of irrigation in Wisconsin potato fields, as in many other central and eastern potato producing states, is of a supplemental type. This means that irrigation is used only when natural rainfall is not sufficient or is poorly distributed. Properly timed supplemental irrigation is necessary for good yields of high quality potatoes, particularly on light sandy soils and on the lighter silt loam soils. On the average it would be reasonable to expect at least a 50- to 100-bushel-per-acre increase in yield when good irrigation practices are used.

Make Sure It's Big Enough

The potato grower wishing to irrigate his crop should plan for an adequate sized layout. One common mistake is to plan to cover too large an area with a small-sized system. If the weather suddenly becomes hot and dry, growers with undersized systems may find it difficult to cover their fields before the crop begins to suffer.

Potato growers should realize,

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During grower w two big p and how r crop shou fore all o is exhaus the plant practical-t perfected easily det ness of th plants in t take much just how o

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however, that irrigation alone cannot guarantee a good crop. To get maximum returns from irrigation, the grower may need to alter some of his usual cultural practices. This means choosing his better fields, using the best green manuring practices, more liberal use of fertilizer, using a somewhat closer hill spacing, and making every effort to get a full uniform plant stand.

During the growing season the grower who irrigates is faced with two big problems—when to irrigate and how much water to apply. The crop should always be irrigated before all of the available soil water is exhausted from the soil around the plant roots. Recently several practical-type instruments have been perfected which can help growers to easily determine the degree of dryness of the soil around the roots of plants in the field. A tensiometer can take much of the guesswork out of just how often to apply water.

How much to irrigate is almost as important as when to irrigate. Over-irrigation wastes water and can leach nitrogen fertilizer from the soil. Common practice is to apply not more than 1 to 1½ inches per application. Under-irrigation is also bad practice since it can only satisfy the crop's needs for a very short time. This means extra applications, more frequent moving of equipment, and increased irrigation costs. Unless the crop is very young or rainfall is expected shortly, it seldom pays to use less than ¾ inch per application.

Some growers make the mistake of irrigating too late into the harvest season. Unless conditions are very dry and a normal crop is not yet made, trying to force extra high yields through late irrigation is likely to result in lower potato quality. Late irrigation can delay maturity, thus causing serious harvesting and handling problems. Lower dry matter content of the tubers may also result. THE END

Irrigation Pipe Trailer

MOVING sprinkle irrigation pipe from the last setting back to the head or from one field to another poses a problem unless you have proper equipment.

With an adjustable-length irrigation pipe trailer, the job can be accomplished with a minimum of hand carrying.

A plan showing how to build such a pipe trailer, together with directions for making best use of it has been issued recently by the University of California Agricultural Extension Service, in Berkeley 4, Calif. Write for the publication, "Adjustable Length Irrigation Pipe Trailer."

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HOW WET IS YOUR SOIL?

(*Continued from page* 9)

amount of water in some absorbing material. This method in turn depends upon the relative attraction of the block and the soil for moisture. Consequently, moisture blocks are roughly related to the energy required to remove water from the soil. They are most accurate in drier soils where the tension is above one atmosphere.

Water can be most efficiently applied to crops when the tension measured at a depth in the root zone representing the depth of average root distribution is between about 0.6 and 4.0 standard atmospheres of tension. If applied before the tension reaches 0.6 atmospheres, the soil will probably be kept too wet, and poor aeration will retard growth. If allowed to dry beyond about 4.0 atmospheres tension, the soil is often too dry and plants are wilted.

Many commercial instruments are calibrated to read in numbers rather than in atmospheres. In such cases the prospective user should ask the manufacturer to indicate the readings on his instrument that correspond to the standard atmosphere.

When direct measurements of tension are used to indicate when to irrigate, the amount of water to apply can be estimated either from one of the methods of estimating the moisture deficit or simply by applying water until the tension begins to drop as indicated by an instrument placed at the appropriate depth in the root zone.

Weight Test—The other general way is based on estimating the moisture content. For any particular soil, the moisture content is related to the energy required to remove water; hence, it is related to availability. Greatly different amounts of energy are required to remove water from soils of different textures and structures even though the moisture content is at the same percentage. When these methods are used, it is necessary to relate the moisture content to energy expended and speed of moisture uptake by plants.

This relation may be shown as a curve between moisture content and tension. More often only two points on the curve are determined: "field capacity," which represents the amount of water in the soil when the rate of drainage becomes small, and "wilting point," which represents the amount of water remaining when the rate of water movement into the plant is so slow that the plant wilts. The difference between these two values is referred to as "available water." Best growth is usually ob-

tained if irrigation water is applied when about 50 to 60 per cent of the available water in the root zone has been removed.

The most accurate method for estimating the amount of water in the soil is to weigh and dry a representative sample of moist soil. The loss in weight divided by the dry weight of soil in the sample is the moisture content.

For irrigation purposes, it is frequently better to take a sample of soil of known volume. The loss in weight upon drying should be divided by both the density of water and the volume of the sample to give the "water ratio." The depth of soil which the sample represents is then multiplied by the water ratio to get the depth of water in the soil. This can be subtracted from the depth of water the soil will retain at "field capacity" to give the depth of rain or irrigation that can be efficiently used.

For example, a soil sample of 100 cubic centimeters might lose 30 grams when dried in an oven at 220° F. for 16 hours. The water ratio would then be 30 grams divided by the density of water which is 1 gram per cubic centimeter and divided again by the volume of the sample.

$$R = \frac{30}{(1)(100)} = 0.30$$

If the water ratio at field capacity is 0.45, the depth of water that each inch of soil will hold is 0.45 — 0.30 = 0.15 inch. If the soil sample represents 12 inches of soil, then the amount of water needed is .15 × 12 = 1.80 inches of water per foot. The second foot of soil might need only 1.00 inch, the third foot only 0.40 inch, and the fourth foot none. The total irrigation would then be 1.80 + 1.00 + 0.40 = 3.20.

When a soil is moist to begin with, the amount of water that is removed from it depends to a large extent upon weather. Many scientists have worked on this basis and have developed coefficients relating moisture removal from soil to one or more weather factors. Frequently different coefficients are introduced for the various crops.

Weather records may then be used along with these coefficients to indicate the amount of water that has been removed from soil. If soil was initially at "field capacity," then the excess of removal over rainfall represents the net moisture deficit in the soil. When the deficit reaches some predetermined amount that must be figured separately for each soil and each crop, irrigation water is applied in sufficient quantity to remove the deficit. THE END

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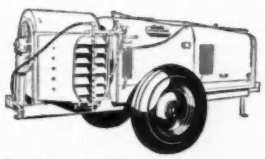
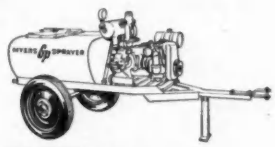


Myers Concentrate Field-Crop Sprayer



Myers General-Purpose Sprayer

Myers Concentrate Sprayers benefit these and other important growers in two profit-making ways: (1) cut operational costs (2) help produce high-quality, premium priced yields.

Concentrate spraying requires just one-fourth the water needed for dilute methods—and fewer stops for water save spraying time. Control is better, too, because with low-water mixtures there's no runoff. Spray materials go further.

The high-velocity Myers Concentrate Sprayer assures even distribution of spray mixture in small droplets over the entire plant. There is no undesirable spotting from excessive spray deposits. Let your Myers dealer explain these and other features of the Concentrate Sprayer.

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GREENHOUSE GROWERS OPEN MARKETING SEASON

MEMBERS of the Cleveland Greenhouse Vegetable Growers Association got together in April with newspaper, radio, and TV food editors to inaugurate the marketing season for their spring crop of tomatoes. Over 400 acres under glass make the Cleveland area the largest greenhouse vegetable producing area in the world. Of the total acreage, 333 acres are devoted to tomatoes with the remainder in leaf lettuce, Bibb lettuce, watercress, and cucumbers. An average greenhouse produces 100 tons of vegetables per acre annually.

Two crops of tomatoes are harvested, the first from April to July and the second, October to January. Competition from southern-grown green-wrap tomatoes caused greenhouse growers to mark or brand their product by leaving the stem or calyx on the fruit. However, some southern producers are doing likewise. Cleveland producers would give a considerable sum of money to find a way to brand their tomatoes much the same way that Sunkist brands oranges. Cleveland growers feel their product has superior quality with rich, sweet flavor, combined with a thin skin which outdoor-grown tomatoes picked green cannot match.

Shown above are the officers and members who entertained the press. Seated, from left: E. D. Hoag, Paul Ruetenik, Charles W. Sanderson, and R. Paddock. Standing, from left: W. E. Martin, Verne Krawshaar, Walter Pretzer, W. McAllister, Carl Deeds, and A. G. Heinrichs.

During the annual dinner meeting of the association held at Columbia Station all three officers were re-elected: Mr. Ruetenik, president; Mr. Hoag, vice-president, and Mr. Sanderson, secretary-treasurer.

THE NEW APPROACH TO IRRIGATION

(*Continued from page* 12)

inches of water was applied twice each season to the irrigated plots. The accompanying table shows the average yield in dozens of marketable ears per acre for the various treatments.

As indicated in the table, the yield from irrigated plots increases with each increase in plant population, while on the non-irrigated plots the reverse is true. Increases in plant nutrient supply did not materially affect the yield. This would indicate that 500 pounds of 6-8-8 plus 32 pounds of nitrogen per acre was sufficient for the highest population.

These results show clearly that farmers who are equipped to irrigate should fertilize and plant to make maximum profitable yields instead of planting for the "normal" season and irrigating when the need arises in order to save the crop. In this case, planning the cultural practices to make the crop resulted in a gross increase in income per acre of approximately $175 over the "normal" operation.

Similar results have been obtained from irrigation experiments with tomatoes, sweetpotatoes, sweet pepper, and bush snap beans. Irrigation produced a net increase in value per acre of $157.50 with tomatoes, $120 with sweetpotatoes, and $268.21 with bush snap beans. THE END

EFFECTS OF IRRIGATION, SPACING, FERTILIZER RATE, AND SIDEDRESSING ON MARKETABLE YIELD OF SWEET CORN, CRYSTAL SPRINGS, MISS. THREE-YEAR AVERAGE 1951-1953.

Plants[1] per acre	Fertilizer pounds per acre		Marketable yield Dozen ears per acre		Average difference due to irrigation
	6-8-8	N sidedressing	Irrigated[2]	Non-irrigated	
12,445	500	32	979	585	394
16,830	500	32	1070	513	557
24,890	500	32	1270	497	773
12,445	500	64	939	523	416
16,830	500	64	1033	567	466
24,890	500	64	1131	373	758
12,445	500	96	978	532	446
16,830	500	96	1039	454	585
24,890	500	96	1094	425	669
12,445	1000	34	1013	591	422
16,830	1000	34	1186	524	662
24,890	1000	34	1249	430	819
Average			1082	501	581

[1]The plant populations were obtained by thinning to:
1 plant per hill with hills 12 inches apart for 12,445 plants.
2 plants per hill with hills 18 inches apart for 16,830 plants.
2 plants per hill with hills 12 inches apart for 24,890 plants.
[2]Two acre-inches of water were applied twice each year.

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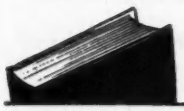

VEGETABLE PRODUCTION and MARKETING

By PAUL WORK, Professor Emeritus of Vegetable Crops, and JOHN CAREW, Professor of Vegetable Crops; both at the New York State College of Agriculture, Cornell University

THIS completely up-to-date revision of a famous work provides a comprehensive handbook for study and reference on the growing and merchandising of all the major vegetable crops. Emphasis is on cost factors and marketing procedures, a phase too often neglected in books and journals.

The book stresses the fundamental characteristics of crop plants and their response to environment. The authors provide detailed information on all the aspects of vegetable growing — equipment, soils and fertilizers, planting and tilling, irrigation, cultivation, and harvesting. Each topic is treated as a self-contained unit, but all are linked by careful cross-references.

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BOOK REVIEW

Vegetable Production and Marketing by Paul Work and John Carew. $4.72. John Wiley & Sons, Inc.

The vegetable industry has been undergoing a revolution. Changes in growing, harvesting, and merchandising have been extensive in the past decade. The nutritional value of vegetables is today better understood and appreciated than a decade ago.

The second edition of **Vegetable Production and Marketing,** published just 10 years after Paul Work's first edition, is therefore of particular value for it presents up-to-date information on varieties, insect and disease control, harvesting, merchandising, and the latest findings on nutritive values.

General chapters cover culture, harvesting, storage, and marketing, while the major crops of potatoes, tomatoes, sweet corn, root crops, peas and beans, vine crops, onion, cabbage and related crops, celery, lettuce, spinach, asparagus and rhubarb are treated individually.

The chapter on "Selling Vegetables at the Roadside" will be of interest to the growing number of producers who are considering this method of disposing of their crops. The book is well illustrated.

Practical Horticulture by James S. Shoemaker and Benjamin J. E. Teskey. $4.20. John Wiley & Sons, Inc.

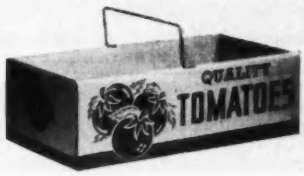
This new book is a practical and easy-to-follow reference and guide to the how, what, and why of horticultural operations. Each crop or group of closely associated crops—ornamental trees, shrubs, and vines; flowers; vegetables; and tree and small fruits—is dealt with specifically in the 28 illustrated chapters.

Information is given on varieties, propagation, planting, pruning, weed and pest control, harvesting, storage, and general cultural operations.

Ball Blue Book Home Canning and Freezing Recipes and Methods has 64 pages of recipes on canning and freezing fruits, vegetables, meats, poultry, and sea food. **101 New Uses for Ball Jars and Fittings** is a 68-page illustrated booklet for home canners and handyfolks. Both booklets are available for 25 cents each from Ball Brothers Company, Inc., Muncie, Ind.

Books on vegetable growing and allied subjects may be ordered through AMERICAN VEGETABLE GROWER, Willoughby, Ohio. Enclose money order or check.

BETTER VEGETABLE BOXES From WABASH



Here is a very attractive tomato basket that not only displays the fruit to its best advantage but will withstand wear.

Attention Re-Packers

for dependable, rapid service suppliers on your tube masters of all sizes, contact us direct.

We make boxes for every use in the produce field. Also to your specifications.

Write for information, and let our planning engineers assist with your box problem.

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Terre Haute, Indiana

Insist on HALE

Irrigation Pumping Units

For protection of YOUR crops

write today for information (AV) IRRIGATION DIV.

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

SENSATIONAL!! New Low Cost Plastic Greenhouse Heating

WITH KUR-MOR

(USING L-P OR BOTTLED GAS)

50,000 BTU Input
Rugged Construction
No Vent Required

100% Safety Pilot
Directional Heat Flow
Manual or Automatic Control

Is Being Used With Outstanding Results

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BLUE GRASS BUTANE CO., Inc.
2417 Nicholasville Pike Lexington, Ky.

It's this easy to join irrigation pipe with

No tools required!
No yokes, latches or catches to cause extra work, extra trouble, extra expense!

Besides being easier and faster to use, McDowell Couplings offer other important benefits. They're built stronger to take rough handling . . . require less upkeep . . . and the patented pressure-lock design provides a watertight seal automatically.

If you're considering sprinkler irrigation, see your McDowell dealer.

McDowell-The Best Coupling Made!
Sizes 2" through 8"

MAIL COUPON for details!

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Address_____
City_____ Zone____ State_____

McDOWELL MANUFACTURING CO.
STANTON AVE., PITTSBURGH 9, PA.

JUNIOR GROWERS GET PRACTICAL EXPERIENCE

Marketing activities and demonstrations at grower and trade meetings spur youngsters to greater accomplishments

MANY members of the National Junior Vegetable Growers Association are getting some really practical experience these days, thanks to their state leaders. To note just a few of the activities: State leader L. C. Hamilton, of South Carolina, has made arrangements with a number of local supermarkets for NJVGA members to work in the stores. This will not only help to raise funds for the state program but will give the youngsters a first-hand idea of retail marketing. P. A. Minges, at Davis, Calif., reports that the vegetable crops department of the University of California is offering production and marketing awards for their state winner and runner-up. The California Seed Association and its affiliate firms are furnishing the awards in the vegetable demonstration contests.

21st ANNUAL CONVENTION
of
NATIONAL JUNIOR VEGETABLE GROWERS ASSOCIATION
December 11-15, 1955
Jung Hotel
NEW ORLEANS, LA.

A number of state leaders have arranged to have NJVGA members put on demonstrations at grower and trade meetings. One team in West Virginia has given their demonstration 21 times to over 2,000 people. Another team from Indiana has chalked up a score of 32 groups. One of these demonstrators, John Paul Ickes, won the state future farmer oratorical contest recently at Purdue, spurred on by the incentive to do better in presentations.

Dr. Orrin C. Turnquist, Minnesota extension horticulturist, tells about a recent meeting of 4-H Club members and leaders at Sleepy Eye, Minn. At this meeting a trophy was presented to the Brown County NJVGA judging team by the Minnesota secretary of agriculture. This team was the state winner last year in the vegetable judging contest held during the Minnesota state fair. Members on the team were Marcus Faerber, Clifford Laurence, and Barbara Scheibel.

13th Annual Demonstration Contest

Rules for this important NJVGA contest have just been announced and wide participation is expected on a local basis. The contest is designed to stimulate careful planning, a thorough knowledge of and the ability to explain procedures by word. The four divisions in the preliminary contest include production, soil fertility and improvement, marketing and use. The two most worthy demonstrations in each division will compete in the finals for the national awards.

Entrants must be at least 14 years of age and not over 21; they may enter as teams or individuals. The actual demonstration is limited to 15 minutes and offers the opportunity to appear before the public to present a story in a logical, clear-cut sequence. Elimination contests are held in each state to select the team or teams to be represented in the national contest. All teams entered in the national contest must then forward their entries to Prof. Grant B. Snyder, 103 French Hall, University of Massachusetts, Amherst, Mass., not later than December 1, 1955.

Enroll Now in Production and Marketing Contest

If you have not mailed in an enrollment card to your accredited state leader or to NJVGA headquarters, be sure to do so as soon as possible. This major project is designed to encourage an interest in the growing and marketing of vegetable crops by young men and women between the ages of 12 and 22. It requires detailed records as to project organization, production, costs and returns, cultural practices, and the method of marketing or use

A bi-monthly page for the younger generation of vegetable growers and their national organization, the National Junior Vegetable Growers Association.

Marcus Faerb
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President: Nad
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Vice-President:
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Secretary: Mar
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Spiegelberg,

Adult Advisor:
Hall, Univ.

NJVGA

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Marcus Faerber, member of Brown County (Minn.) NJVGA judging team, receives congratulations for his team from Dr. Orrin C. Turnquist, Minnesota extension horticulturist. Trophy was presented by Minnesota secretary of agriculture during recent meetings of 4-H Club members and leaders.

for the specific enterprise. Enrollment cards can be obtained from local adult leaders, from state NJVGA chairmen, and from NJVGA headquarters.

Write for Information

Junior growers throughout the U. S. will want to keep the following addresses readily at hand. Full information about contests or NJVGA activities of any kind is available from any one of them; however, young men and women wanting information about association activities in their own area or state should contact their regional chairman first.

JUNIOR NJVGA OFFICERS FOR 1955

President: Nadine Thompson, 29 Malby Ave., Massena, N.Y.

Vice-President: Jack Armstrong, 2104 W. Jefferson, Springfield, Ill.

Secretary: Mary Froebe, 1130 E. 4th St., Charlotte, N.C.

Executive Committee: Roy Curtiss III, Rice Hall, Cornell Univ., Ithaca, N.Y.; Delmar Chase, Rt. 4, Box 222, Morgantown, W. Va.; Gwendoline Fair, Rt. 5, Batesville, Miss.; Dale Spiegelberg, R.D. 2, Lorain, Ohio.

Adult Advisor: Grant B. Snyder, 103 French Hall, Univ. of Mass., Amherst, Mass.

NJVGA REGIONAL CHAIRMEN

NORTHEAST REGION (Conn., Del., Maine, Md., Mass., N.H., N.J., N.Y., Pa., R.I., Vt., W. Va.): Melvin H. Kolbe, Assistant Extension Horticulturist, West Virginia University, Morgantown.

SOUTHERN REGION (Ala., Ark., Fla., Ga., Ky., La., Miss., N.C., Okla., S.C., Tenn., Texas, Va.): Chesley Hines, Extension Horticulturist, Mississippi State College, State College.

CENTRAL REGION (Ill., Ind., Iowa, Kans., Mich., Minn., Mo., Nebr., N.D., Ohio, S.D., Wis.): Norman F. Oebker, University of Illinois, Urbana.

WESTERN REGION (Ariz., Calif., Colo., Idaho, Mont., Nev., N.M., Oreg., Utah, Wash., Wyo.): Leonard A. Yager, Montana State College, Bozeman.

CLIPPINGS NEEDED

Publicity is an important factor in the effort to solicit funds to carry on the full program of NJVGA. Miss Margaret Herbst, NJVGA publicity director, is preparing a scrapbook containing news releases, etc., involving association activities. The NJVGA does not have a clipping service and, therefore, needs your help. Please send "clips" from newspapers, magazines, etc., to Miss Margaret Herbst, 101 Park Avenue, Room 1725, New York 17, N. Y.

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AQUAPROBE

the subsoil **Moisture Meter**

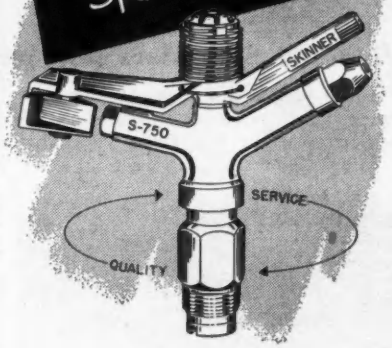
"See" beneath the soil! The Aquaprobe determines relative subsoil moisture content . . . *anywhere* . . . accurately . . . instantly! . . .

Lightweight, portable, entirely self-contained. Now you can be *sure* of water penetration, and can tell when to start or stop irrigation instantly. 17½" overall, $32.60. Longer probes slightly higher. Send for circular.

General Scientific Equipment Co.

3001 Dixwell Avenue Hamden, Conn.

SKINNER sprinklers



your best drought insurance!

- Field tested under field conditions
- Designed for uniform water distribution
- Driven by "extra-power" movable deflector
- Protected from abrasive sand
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- Ruggedly constructed

Write today for complete information.

The SKINNER Irrigation Co.
146 Water St.
Troy, Ohio

MAKE SPACE RESERVATIONS NOW
FOR IMPORTANT JULY DIRECTORY ISSUE

Why Buy Ice?

Make your own
FLAKED ICE
for as little as
$1.50 to $2.00 per ton

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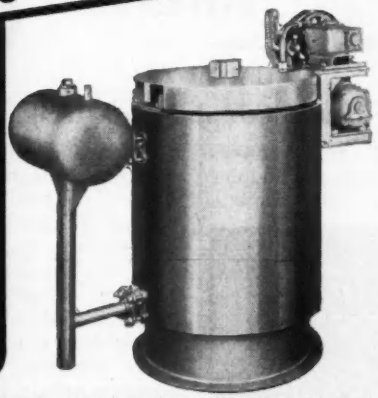

A fully automatic Ice Machine—ice starts immediately. It's economical—you pay only for the ice you use. Occupies less space than the storage bin. Large capacity—3 to 12 tons per day. Installation is simple—can be connected to present refrigeration system or we can furnish complete with compressor, etc. Use coupon or write.

BURGE ICE MACHINE COMPANY Dept. A, 654 W. Washington Blvd. Chicago 6, Illinois

Branches: Ft. Wayne, Ind.; Green Bay, Wis.; Knoxville, Tenn.

BURGE ICE MACHINE CO., Dept. A,
654 W. Washington Blvd., Chicago 6, Ill.
Please send bulletin on Burge Flaked Ice Machine.

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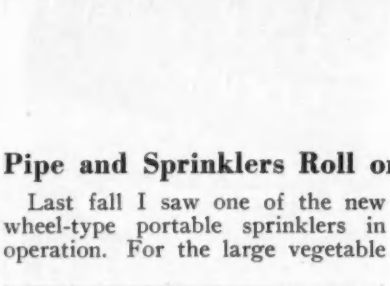
Company .....
Address .....
City ..... Zone ..... State .....

NEW FOR YOU

—to increase your profits

Pipe and Sprinklers Roll on Wheels

Last fall I saw one of the new wheel-type portable sprinklers in operation. For the large vegetable grower this system is about perfect. It will save up to 80 per cent in labor costs. The entire unit moves easily and picks up a minimum of mud. I would advise you to get all of the information on this new and wonderful wheel-type sprinkler. All you have to do is mail a postcard addressed to Food Machinery & Chemical Corp., John Bean Division, San Jose 1, Calif., or Box 840, Lansing, Mich.



No Corrosion Problem with This Sprayer

If you are like most vegetable growers, the inside of your spray tank right now is being eaten away by the corrosive chemicals we all must use to combat insect damage and disease. At long last one of the major sprayer companies has developed a finish for spray tanks which is permanent and resists corrosion. You'll want the information on this new process, and all you need do is write Dept. AV-5, F. E. Myers & Bro. Company, Ashland, Ohio.

Irrigation Pumping Facts

A new booklet describing the various pumps needed for specific irrigation jobs has just been printed. This interesting booklet quickly tells you, the grower, the type of pump you need for the job at hand. Booklets are free for AMERICAN VEGETABLE GROWER readers. Just write. L. H. Taylor, Deming Co., 884 S. Broadway, Salem, Ohio. Ask for Bulletin 800-D.

Handy Pocket Microscope

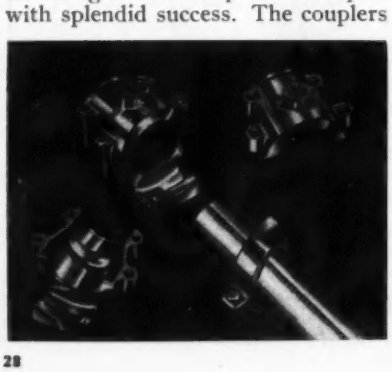
Many thousands of dollars can be saved by growers if they know when and what spray material to apply. To do this job properly, it is essential that the insect or fungus causing the damage be identified beyond a shadow of a doubt. One of the cheapest investments to guarantee this is a pocket microscope. Several growers at the winter horticultural shows told us they use them. They cost $3.50 for the 20 power glass and $4.50 for the 40 power microscope. Why not write James Van Kleeck, 1242 Webb Road-12, Cleveland 7, Ohio.

Heavy-Duty Sprinkler

Many of us use dirty or abrasive water for irrigation. Water of this type quickly ruins the average sprinklers. One of the foremost manufacturers of sprinkler heads has developed a sprinkler for use with abrasive water. Known as the 30-W Rain Bird Sprinkler, this new unit is almost abrasive-proof. If you are beset with a problem of this kind, why not write National Rain Bird Sales & Engineering Corp., Azusa, Calif. They will send you full details without obligation.

Economy Heavy-Duty Couplers for Irrigation

Many lettuce and bean growers are using a new inexpensive coupler with splendid success. The couplers are cast aluminum and will carry a working pressure of 60 pounds with a 50 per cent safety factor. The bolt-on design is used and permits independent replacement of either pipe or coupler in the event of damage. A double neoprene gasket expands under pressure to provide a flexible seal which readily follows field contours. These economy couplers are made in sizes from 2 to 12 inches. Here is a coupler well within your budget. Why not write W. C. Kinney, Portable Aluminum Irrigation Co., 1525 W. Vista Way, Vista, Calif., for the facts.



OPPORTUNITY ADS

Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

FOR SALE—EQUIPMENT AND SUPPLIES

SOLVE YOUR VEGETABLE SPRAYING problems with one of our rebuilt and guaranteed John Bean high-pressure sprayers. We have 400- and 500-gallon tank outfits with 35-gallon pumps, both motor driven and power take-off. Wheel spacing and clearance will be converted to suit your needs. Attractively priced. MILLBURG GROWERS EXCHANGE, Benton Harbor, Michigan, southwestern Michigan's oldest and largest Bean dealer.

NEW IRON AGE TRANSPLANTER, ONE-row, with fertilizer attachment. Bargain. GIESZELMANN IRRIGATION EQUIPMENT, Collinsville, Illinois.

1—1953 MODEL 29-L SPEED SPRAYER; 1—Bean Speedaire; 1—Aqua-Jet Blower; 1—Bes-Blo; 1—Niagara Duster; a quantity of new wire-lined 2" Suction Hose, 14 ft. lengths with 2" pipe fittings. Bargain. 1—Niagara Grader; 1—Myers PTO Sprayer. CORY ORCHARDS, Cory, Indiana.

TWO ROW HI-SPEED McCORMICK 25 NEW style potato planter. Will sacrifice for $385.00. Excellent condition. Used only one season. TALLMAN BROTHERS, Phone 1R4, Tower City, R.D. 1, Penna.

HELP WANTED

EXPERIENCED SEED SALESMAN TO CALL on market gardeners in Ohio, Pennsylvania. Write giving complete qualifications. Year-round employment. Opportunity for right man. HOLMES SEED CO., Canton, Ohio.

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BLACK RASPBERRY PLANTS, CERTIFIED, disease free Raspberry plants. Cumberland, Morrison and Bristol plants available at wholesale and retail prices. Contact the OWEN POTATO FARM, Newark, Ohio.

NATIONALLY ADVERTISED REBUILT Vacuum Cleaners. $39.95 FOB Youngstown, Ohio. World famous models with a complete set of attachments: 1. Rug Nozzle, 2. Floor Brush, 3. Upholstery Tool, 4. Crevice Tool, 5. Dusting Brush. Including completely rebuilt motor with new parts. Also hose, dust bag, filter, 20' cord. Satisfaction guaranteed or your money back. Order yours today. Write BOX 103, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

PEAFOWL, SWANS, PHEASANTS, Guineas, Bantams, Waterfowl. Thirty varieties Pigeons. JOHN HASS, Bettendorf, Iowa.

MAILING LISTS—100,000 CAREFULLY selected names in the Agricultural Field. Individual lists of Potato Growers, Tomato Growers, Corn Growers, and many others. Ideal for firms wishing to contact leading growers and dealers. For details write: MACFARLAND CO., Box 2, 8 Elm St., Westfield, N. J.

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SWEET POTATO PLANTS, NANCY HALLS, Portoricans. Prompt shipments. Carefully packed. Planting guide free. 200, $1.00; 500, $1.75; 1000, $3.25; 5000, $15.00. TAYLOR PLANT CO., Gleason, Tenn.

BUILD FOR THE FUTURE

Economy-minded vegetable growers who want to improve and expand their operations and build for the future should have the following building plans which AMERICAN VEGETABLE GROWER has available for its readers.

Working drawings showing construction details are included.

Roadside Market	$1.50
Tenant House	1.50
Pole-Type Packing House	1.50
Machinery Storage & Repair Shed	1.50

Send remittance in the form of check or money order to

AMERICAN VEGETABLE GROWER
Plans and Booklet Dept.
Willoughby, Ohio

BOOKS FOR YOUR LIBRARY

VEGETABLE CROPS *by Homer C. Thompson.* An up-to-date book which covers such subjects as plant nutrition, weed control, nutritional value of vegetables, recent advances in handling and marketing vegetables, cultivation, irrigation and storage. The book contains 611 pages and many illustrations.....$7.50

THE TOMATO *by Paul Work.* Here is a practical treatise on the tomato which is for the amateur as well as the large commercial grower. It includes discussions on characteristics; methods of planting; fertilization; cultivation, points about harvesting, packing, storing and marketing; as well as insects and diseases which attack the tomato. This illustrated book contains 136 pages. $2.50

USING COMMERCIAL FERTILIZER *by McVickar.* Here is a book which gives information on what fertilizers should be used and how-they should be used for most efficient production. $3.00

Books sent postpaid on receipt of check or money order.

AMERICAN VEGETABLE GROWER
Reader Service Department
Willoughby, Ohio

There's a

BETTER MARKET

for the Grower of

VEGETABLES

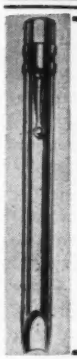
—who is using the LOBEE Sizer-Washer-Waxer. CUSTOMER PREFERENCE for washed-waxed fruit is reported by growers and dealers. Better taste and freshness, better looks—less shrinkage.

See the *gentlest* sizer made—with the chain you can change to a different size in *two minutes!* And you Wash and Wax in the same operation.

Write for names of users in your area.

Lobee Pump & Machinery Co.
Works Ave., Gasport, N. Y.

SINCE 1899 . . . NOTED FOR QUALITY EQUIPMENT



POCKET MICROSCOPE
3 BILLION DOLLAR

loss each year in plant, vegetable and fruit production caused by insect and plant diseases.

WAGE WAR NOW
ON DESTRUCTIVE PESTS

You, your children and helpers should have a Pocket Microscope ready at all times to hunt red spider mites, aphids, scales of many kinds, blights and other pests.

FIND THEM ACT FAST
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20 power, $3.50 (3 for $ 9.00)} one of
40 power, 4.50 (3 for 12.00)} each $7.50

Postpaid. No C.O.D. Please
Money-back guarantee.

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1242 WEBB RD-12, CLEVELAND 7, O.
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BUY, SELL AND TRADE—Readers and business firms will get top advertising value at low cost from AMERICAN VEGETABLE GROWER "Opportunity Ads." These classified ads are widely read, widely responded to by AMERICAN VEGETABLE GROWER'S high-income readers throughout America. Our classified advertising department will run your ad under any heading and will guarantee correct insertion.

RATES—For one insertion, 25c per word. For two insertions, 20c per word. Four insertions, 15c per word. Count each initial or whole number as one word. CASH WITH ORDER.

AMERICAN VEGETABLE GROWER reserves the right to reject or alter any copy which does not meet its standards. Ads will be inserted in first available issues unless preferred month is specified by advertiser. Closing date is first of month preceding publication.

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Please insert my classified ad in your "Opportunity Ads" section as follows:

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(1 insertion 25c per word; 2 insertions, 20c; 4 or more insertions, 15c)

AMERICAN VEGETABLE GROWER | WILLOUGHBY, OHIO

WE NEED MODERN WATER LAWS

A FEW states east of the Missouri River are working on new laws to govern the use of water. Every state has a stake in this problem and sooner or later each one must formulate a law or system of laws to alleviate many of the problems now arising.

Seventeen of the far western states came face to face with the water rights problem many years ago. Water has always been at a greater premium in their more arid climate, so the people living there had to make laws governing its use. A basic principle in most western states is that of prior appropriation. This means that certain water uses get priority over others, as defined in the state laws. The principle is often modified so that no single user can get a monopoly on the use of water in a given area.

South Carolina was one of the first states in the East to adapt the western principle to its water laws. A water control board establishes a priority of rights to the use of water in any lake or stream, with those existing rights protected. Priority on water uses has been established in this order: domestic (this includes all normal farm usage), municipal, irrigation, industrial, recreational, and water power.

Several changing conditions make the establishment of such laws of immediate importance. Population is increasing on every hand, hence domestic use is increasing every day. Industries are expanding and changing their methods, so their daily water consumption is on the increase. More land is coming under irrigation each year which puts an increased burden on water resources. So the question arises, "Who has first right to our water resources?"

The problem of deciding who gets the most water and how it should be used is far greater than most people think. Wherever laws have been made, mistakes have also been made. Many people have been helped or protected by them. Others have been prevented from expanding their business enterprises, farm and otherwise, as they had hoped to.

There ought to be enough water for everybody in this country as far in the future as we can see. There are a few times and a few instances and a few places where water isn't plentiful enough to go around. State water laws, devised to the best of human knowledge, can help solve many of these problems. We hear of many more states going into this matter more thoroughly each year. A few of these are Minnesota, North Dakota, New Jersey, Pennsylvania, Kentucky, and Ohio.

Water, as such, belongs to everybody. The problem is, do we have a right to use that water however we please? Basic in every law should be the benefit derived from the use of that water. We see some fine work being done by state legislatures.

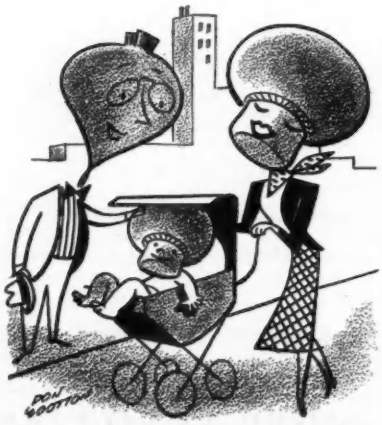
WHY A FARMER IS A FARMER

HAVE you ever given thought to why you are a farmer? George W. Tallman, treasurer of Pennsylvania Co-operative Potato Growers, Inc., gives an answer to that question in the co-op's official publication, *The Guide Post,* and we take pleasure in reproducing a portion of his article.

"We believe that potato planting as a subject for consideration needs our individual 'mental exploration.' If you explore your mind for the reasons **why** you plant potatoes, we believe you will come up with two primary reasons:

1. **You plant for Pleasure.**
2. **You plant for Profit.**

"These are the two basic reasons why any one of us is a farmer. If profit, or the accumulation of mere dollars, were our sole objective as farmers, any one of us smart enough to make money farming in this highly competitive era would probably turn his talent to an occupation that would make him wealthier more rapidly. It is the 'profit' in terms of 'pleasure' that puts a crop in the ground every Spring!



"He's bound to go places—he got his start in the cellar!"

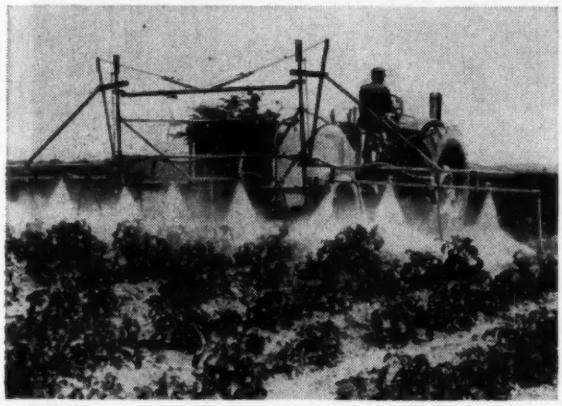
"Not **vanity,** nor **selfish pride;** not the feeling that possessed the man in the parable, who tore down his barns to build greater ones while he satisfied himself selfishly with food, drink and merriment. That is not the pleasure that we seek as good farmers. The pleasure a good farmer seeks is the same thrill, the same joy, the same appreciation that complimented the 'good and faithful servant,' whose careful stewardship proved that he had used the talents he was granted to produce a 100% profit.

"When your practiced eye can evaluate a field of plants coming through the ground in perfect ranks, without missing gaps in the rows; when that field turns into a quilt of snowy bloom, with no holes in the quilt; when the rain pelts down like a waterfall, and the potato rows drink it in and the soil stays where it belongs; when you finally look at freshly dug rows of perfect potatoes, like ocean waves swelling one after the other across the field in a fat and fruitful harvest; then you do not look for or need the 'vain world's golden store,' nor anyone's compliments, nor $4.00 a hundred for potatoes. By the help of God, you take the 'talents' granted to every good potato grower, and by following the rules of good stewardship you multiply the seed into a crop that in itself gives you a reward that puts money into the place it belongs as only a medium of exchange.

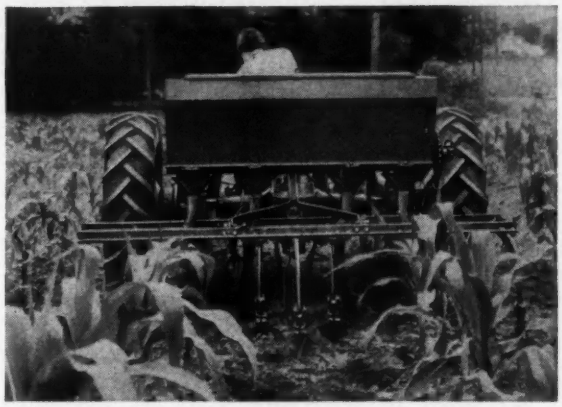
"No money can buy the joy that fills your heart at the sight of a litter of ten perfect pigs nuzzling a sow, bouncing little whiteface calves romping on a ladino carpet, a tree laden with fat and shining Winesaps, a perfectly handled potato field at any stage of growth. Such reward comes only to a farmer —who **follows the rules of good stewardship!"**

Coming Next Month

- Annual Directory Issue and Buyer's Guide
- Vegetable Areas of America—Eastern Virginia
- How a Maine Grower Produces Quality Potatoes
- Ohio's Annual Greenhouse Day
- Anhydrous Ammonia—What It Can Do

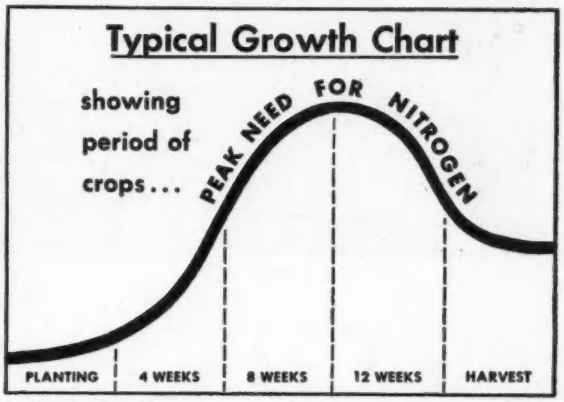


1. "NuGreen" works fast as a foliage spray. Combine it with pest-control sprays to eliminate separate nitrogen applications. Saves time, labor. Won't corrode equipment.



2. "NuGreen" is efficient for side dressing or top dressing. "NuGreen" resists leaching, stays in the soil to feed your crop yield-building nitrogen as it grows.

3. "NuGreen" can be applied in any irrigation system to save you time, labor. "NuGreen" reaches roots, because it isn't fixed in top few inches of soil.



4. "NuGreen" feeds crops when they need it most. Different crops have top need for nitrogen at different growth stages. "NuGreen" will feed your crop as needed.

To feed your crops nitrogen when they need it most

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"NuGreen" is concentrated, free-flowing, and readily soluble in water. It comes in 80-lb. bags. There's a place on your farm where Du Pont "NuGreen" can increase your profits. See your dealer for "NuGreen," today. Ask for free literature giving crop recommendations.

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- compact growth for close planting
- large, thick-walled fruits
- good protection from sunscald
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